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Industrial FINISHING

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By Lawrence H. Singer

Report from the Workers—If you are to believe some of the alarmists, a second American Revolution, spearheaded by our industrial employees, is just around the corner. Business leaders should find assurance in the results of a poll undertaken by *Factory Management and Maintenance* Magazine. According to this survey, the average plant employee is still a rather conservative fellow.

For example, only 10% of those queried favor a labor party for the United States. A mere 17% voted in favor of nationalization of our factories. And, oddly enough, only about one-third of our workers seem to feel that nationalization of basic British industry is a good idea for the British people.

On one point, American workers were emphatic: When new machines are brought into a plant, a substantial majority feel that jobs for displaced workers must be provided by either the Government or the company. Even here, however, only 8% believe that the Government should solve the problem, while 58% express the conviction that the solution is their employer's responsibility.

This nation-wide survey was conducted for the McGraw-Hill publication by the highly-respected Opinion Research Corporation of Princeton, N. J., making use of the modern opinion-measurement techniques. The general deduction seems to be that the American working man continues to stand aloof from class consciousness.

* * *

Market for Autos—According to a consumer survey conducted by Sylvania Electric Products, Inc., a market for over 13,000,000 passenger automobiles is indicated for this country. The study was originated to determine the potential demand for automobile radios.

A significant feature of this investigation is the disclosure that the prospective sale of over 9,000,000 cars is indicated for families with incomes of $3000 or less a year. And, of special interest to Sylvania officials, is the considerattion that four-fifths of those questioned answered that they plan to purchase cars equipped with radios.

* * *

New Plane Material—An innovation of importance to the aviation industry has been announced by Glenn L. Martin Co. and the United States Plywood Corp. It is a "honeycomb" of cloth or paper, sandwiched between and firmly bonded to thin sheets of aluminum, stainless steel, wood veneer or plastic.

This new featherweight construction material is reported to possess enormous strength, while making tangible savings in weight. The technique is now being used in the cabin flooring of the new Martin Model 202 twin-engine luxury

(Continued on page 9)

transport. It is also to be incorporated in the fuselage.

* * *

More Air Control—Prospects for sensational expansion in the air-conditioning field grow brighter with each new report. Many railroads have stated that air conditioning is near the top of their list of immediate improvements, for temperature control has been called the "greatest single contribution to rail-travel comfort."

It is contended by the Refrigeration Equipment Manufacturers Association that automobiles may even be equipped with refrigerators for beer in a year or two. This organization believes that the time is not far off when practically every trailer, trolley, train and plane will be fitted with mechanical refrigeration.

One air line hopes to introduce pressurized, air-conditioned cabins on its planes this year. Air-conditioned trolley cars have already been placed into operation in Atlanta, and the Greyhound Bus Co. has ordered over 200 cruiser coaches, each equipped with modern temperature-control devices.

* * *

Construction Hopes—In the estimation of Brig. Gen. Leonard P. Ayers, Vice-President of the Cleveland Trust Co., the long-awaited building boom is not precisely around the corner. As the celebrated Midwest economist views the situation, our nation's construction program is getting under way rather slowly, a major handicap being the current high level of labor and material costs.

Despite these drawbacks, General Ayres expects to see us eventually in the midst of a building boom that will resemble the one which followed World War I. He

(Continued on page 10)

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still believes, however, that no easy solution for our acute housing shortage is in sight, and he warns that it is destined to remain one of our knottiest problems for an indefinite period.

* * *

French Autos—Reports reaching us from Paris indicate that the French auto industry is planning to stage a major comeback. Intense studies are under way with the hope of copying mass-production methods perfected in the United States.

France has outlined a 5-year plan, with the goal of almost half a million cars for the fifth year of the program. The number of types of vehicles is being cut by two-thirds in an attempt to improve efficiency. For some time, however, major emphasis will be on trucks and buses, so France will undoubtedly continue to be a export market for our automobiles for the next few years.

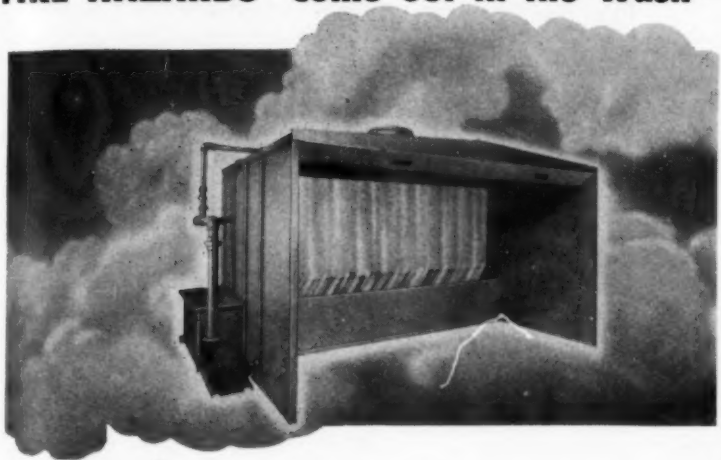
* * *

New Fabrics Coming—A virtual revolution in the manufacture of cloth is close at hand, in the opinion of *Industrial and Engineering Chemistry*. We may expect stain-resistant materials for automobile upholstery, rayon with 100% recovery after stretching, and many other wonders. It is reported that three mills in China are already manufacturing a cloth from grass which is stronger and more resilient than cotton.

The development which holds the greatest promise for tomorrow is taking place at this time in Milltown, N. J. By use of a resin binder, raw cotton is being turned into fabric cotton without spinning or weaving. In the calm view of com-

(Continued on page 124)

FIRE HAZARDS "Come out in the Wash"



with Paasche's Water Wash Booths

Paint that would otherwise accumulate on walls, in the exhaust fan and exhaust piping, never gets a chance to build up, with Paasche Water Wash Booths. The dangerous mist of overspray paint is drawn to a smooth flowing curtain of water and washed down into a settling tank. The air finally exhausted to the outside is clean and free of trouble-making paint particles. Paasche Booths reduce fire hazards—are endorsed by Safety Engineers and Industrial Commissions.

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164

Production Finishing of

—HOM

EVERYONE is about to become better acquainted with modern factory-made homes that are attractive in appearance, substantial in build, comfortable to live in, and of lasting durability in any kind of climate. The prefabricated home—late to arrive in such a highly industrialized country as this—is officially recognized as an outstanding answer to the national problem of providing 2,700,000 new homes by 1948.

The plant that produces Gunnison Homes is completely conveyorized. A complete home, finished inside and prime-coated outside, will come off the conveyor line every 25 minutes when everything is rolling at top speed.

Wall Panels 4x8-ft. Finished Both Sides

Wall panels are made up of plywood panels permanently bonded to structural wood framing. Panels for outside walls have poplar plywood for outside exposure, and fir plywood for the inside. The

g of Factory-Made

OMES..

By E. M. MOORE
Director of Research for
Gunnison Homes, Incorporated
U. S. Steel Corp. Subsidiary

poplar plywood receives a coat of white primer at the factory, while the fir plywood receives a clear lacquer finish. Panels for inside partition walls have fir plywood on both sides and receive a clear lacquer finish on both sides.

Key to Illustrations:

1) A 5-room Gunnison home with an optional fireplace, arcade and garage.
2) Conveyor lines in factory—wall frames on one; finished wall panels on the other. Other types of conveyors are used too.
3) Exterior of window panel receiving its white primer coat. Notice masking shield that spray operator holds in his left hand.

Panels for both outside and partition walls are 4x8-ft. They are built up over substantial wood frames, which serve as wall studs, before they enter the finishing department. Some wall panels have openings for doors; others have openings for windows. These openings are fitted with jambs and trim to receive the doors and windows specified.

Wall panels hang from an overhead chain conveyor as they travel

through the finishing room. The first coating operation on wall panels is to treat the poplar plywood (exterior) sides of outside wall panels with a clear water-repellent preservative. Since this preservative is highly toxic, we prefer to apply it with brushes, Four men attend to brushing the thin clear preservative material over the poplar plywood sides of all wall panels that enter the finishing room. The preservative sinks into the wood and air dries as the panels travel along by conveyor to spray booths No. 1 and No. 2, as shown in Fig. 1.

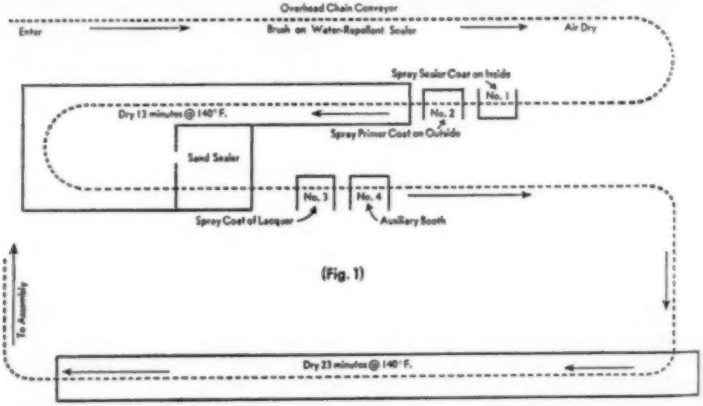
Lacquer Finish Inside; White Prime Coat Outside

At spray booth No. 1 the fir plywood sides of all wall panels are given a coat of amber-tinted lacquer sealer. At spray booth No. 2 the poplar plywood (exterior) sides of outside wall panels are given a coat of oil-base white primer. These two operations at spray booths No. 1 and No. 2 take care of the preliminary coating of both sides of all wall panels. The coatings are oven dried as the panels travel through oven No. 1 where the temperature is maintained at 140° F. Length of time required for a panel to travel by conveyor through oven No. 1 is 13 minutes.

When panels emerge from oven No. 1, the sealer coated surfaces are lightly sanded; the sand dust is blown off with an air gun and the surfaces are wiped clean. As panels travel through spray booth No. 3, the lacquer sealer coated sides (fir plywood) are sprayed with a coat of clear lacquer. This is the final coating on all inside wall surfaces. It is baked at 140° F., for 23 minutes, as the panels move through oven No. 2. Finished wall panels continue by conveyor into an assembly room where door panels are fitted with doors and trim, as specified.

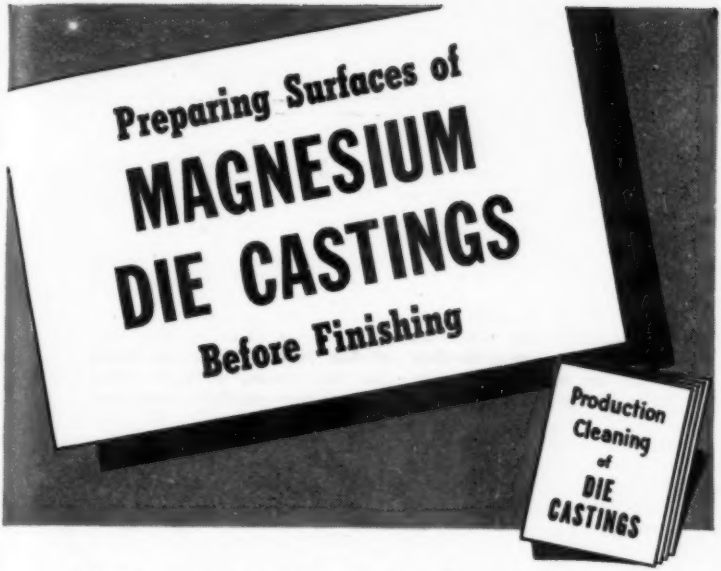
Floor Panels, 4x12-ft.; Finished Oak Plywood

Floor panels consist of plywood bonded to both sides of structural wood framing which corresponds to the floor joist in all ordinary



(Fig. 1)

Fig. 1—Floor plan setup for protectively coating both sides of wall panels.



BEFORE applying chemical or organic finishes to magnesium die castings, one indispensable step toward obtaining the best possible finish is proper preliminary surface preparation.

Oakite alkaline and solvent type materials are designed to free magnesium surfaces from oil, grease and dirt prior to these finishes. Used in still tank or by electrocleaning procedures, these fast-working Oakite materials THOROUGHLY remove ALL foreign matter . . . safely . . . leave surfaces in a *chemically* or physically *clean* condition for subsequent operations.

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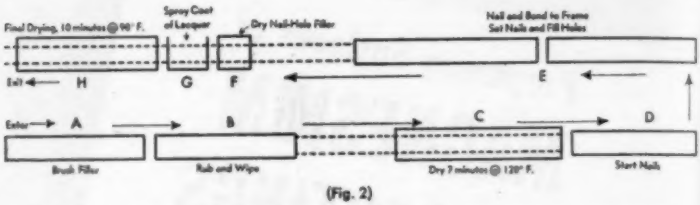

(Fig. 2)

Fig. 2—Layout for filling and lacquer coating the top sides of floor panels.

carpenter-built homes. A standard size floor panel is just 4-ft. wide by 12-ft. long. The side of the floor panel that you walk on is generally made of 5-ply oak. These 5-ply oak top panels receive their sealer coat before they are nailed and bonded to the structural frames.

Referring to the production layout marked Fig. 2, the face or top side of each floor panel receives a brushed-on coat of filler when it first enters the finishing room. About 15-minutes after the filler has been brushed on, it is hand rubbed by a circular motion with tow or Spanish moss, and then wiped with rags to clean up the surface. A twin chain conveyor carries the filled floor panels through an oven in which they are subjected to a heat of 120° F. for 7 minutes. This heat takes care of thoroughly drying the filler. When the floor panels leave the oven and become cool, finish nails are started by two men working at the station "D" in Fig. 2.

Floor frames, which serve as floor joists in a completed house, are assembled in a room adjoining the finishing department. These completed frames are delivered to the finishing room at station E, as marked in Fig. 2. The sub-floor panel is first nailed to the underside of the frame, and rockwool insulation is inserted between joists. Then a special phenolic bonding agent is brushed on the top edges of floor joists which are to receive the face panels. With the filled floor panels carefully positioned, the finish nails, which were started previously, are driven and set. Nail holes are filled with a brown silex filler. This method of fastening a floor panel to its structural wood frame prevents any possibility of floors squeaking after many years of service.

Assembled floor panels are moved by conveyor through a 4-ft. infra-red tunnel which quickly dries the filler in the nail holes (see F in Fig. 2). Next in line is a spray booth (G, Fig. 2) where the face side of every floor panel is sprayed with a coat of gloss lacquer (27% solids) as the panel moves along flatwise on a twin chain conveyor. Leaving the spray booth the freshly lacquered panels move into and through an oven wherein the temperature is 90° F. Time allowed for panels to move through the oven by conveyor is ten minutes; then they proceed to the shipping room.

Ceiling Panels, 4x12-ft.; Roller Coat Finish

Ceiling panels are similar in size and general make-up to floor panels, but they are lighter in construction. A plan of the finishing setup for ceiling panels is shown in

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Ends Long Drying Period in Parts Plant

A parts supplier was using a standard brand of solvents for cleaning parts before shipping, but found the long drying period was slowing up production.

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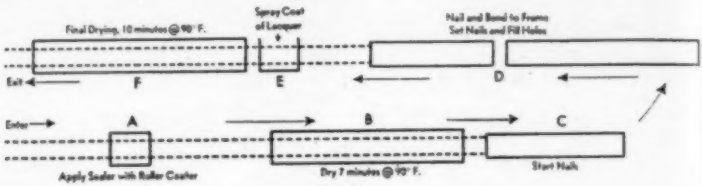


(Fig. 3)

Fig. 3—The setup for coating ceiling panels includes a roller coating machine.

Fig. 3. The panels for ceilings are run through a roller coater which gives them a smooth, uniform-thickness coating of amber-tinted lacquer sealer. This coating is oven dried for 7 minutes at 90° F.

As with the floor panels, finishing nails are also started in the ceiling panels so they can be nailed to their structural wood frames—the rafter frames. Top edges of the rafter frames are coated with the phenolic bonding agent and the face ceiling panels are nailed in place. Colored synthetic putty is used to fill the set nail holes. Unlike the silex filler used on floor panels, this synthetic putty does not require force drying.

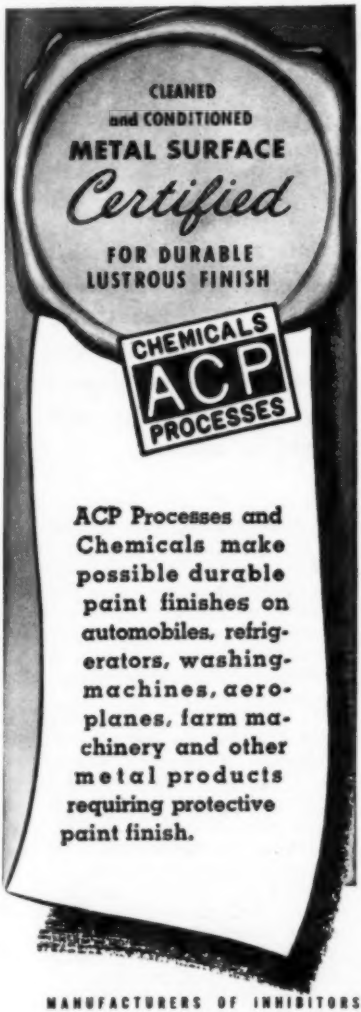
Assembled ceiling panels pass through a spray booth (E, Fig. 3) where they are given a coat of clear flat lacquer. Then they move through an oven, as shown in Fig. 3, where they receive their final drying at 90° F. for ten minutes. Ceiling panels are then ready for the shipping room.

You may wonder why the sealer coat is rolled on ceiling panels, whereas wall panels are spray coated. There are two reasons for this: First, the wall face panels are fastened to their frames before being finished. Second, a small quantity of white sealer is added to the amber colored sealer used on ceiling panels. The roller coating machine spreads this sealer more uniformly and produces a smoother finished surface than spray coating.

We operate four distinct finishing rooms each of which is located conveniently along the conveyor line. I have not mentioned nor shown the layout for finishing inside and outside trim and mouldings, nor such architectural details as outside blinds, louvers, window sills, etc. All of these items receive a sealer coat and white primer identical to the outside surfaces of exterior wall panels. In fact, all exterior surfaces receive a sealer coat of wood preservative followed by a white prime coat at the plant.

After erection the exterior surfaces receive two brush coats of outside white paint. Architectural trim and other details are given two coats of paint in a color to suit the individual taste of the owner. All interior surfaces are finished as described, complete at the plant. If any finished surfaces are marred in any way during shipment or erection, they are carefully cleaned up and touched up later.

To obtain permanently satisfactory houses, we have, through unending research and experiment evolved a finishing schedule of controlled methods and materials which we know gives satisfactory results in every respect.



EACH of the following American Chemical Paint Co. products excels in the special application for which it was developed—all prepare metal surfaces for durable finishes:

COLD SPRAY-GRANODINE produces a dense smooth phosphate coating that protects steel and paint for a durable, lustrous paint finish.

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DEOXIDINES—There are other Deoxidines that remove rust, clean and condition for painting.

LITHOFORM—a phosphate coating that bonds paint to galvanized, zinc or cadmium coated surfaces.

MANUFACTURERS OF INHIBITORS AND METAL WORKING CHEMICALS

AMERICAN CHEMICAL PAINT CO.
AMBLER ACP PENNA.

TESTED RESULTS ON MAINTENANCE OF *Infra-Red Equipment*

BY IRA J. BARBER
Director of Engineering,
Fostoria Pressed Steel Corp

While it is desirable to keep infra-red bulbs and reflectors clean, tests indicate that the presence of dirt and dust on them does not cut down their drying efficiency as much as might be assumed.

THE question of the proper maintenance of infra-red equipment used for baking and drying paint coatings involves several interesting points inherent in the process. In general, it may be said that there has been a perfectly natural tendency on the part of many to assume that visual appearance of reflective equipment was a safe means of appraisal of its radiant performance. Field and laboratory experience indicates that in many cases this is an unwarranted assumption. Many of the impressions currently in vogue represent wishful thinking on the part of competitive interests affected by the unprecedented success of this form of heat transfer.

In some instances, the maintenance aspects of one type of equipment have been stressed to the detriment of another. Fostoria, manufacturing a complete line of equipment embracing all competitive types, is in a position to report impartially and factually much pertinent data concerning the subject as a whole.

Tests Made to Learn the Effect of Dirty Lamps and Reflectors

Recent tests conducted by one of our field laboratories consisted of spraying a lampblack mixture on the whole interior of an oven, covering lamp and reflector surfaces. This treatment resulted in a reduction of about 16% in product temperature, both in the case of the clear lamp and open gold reflector combination oven, and with the reflector lamp plus flat reflective wall oven. The test was performed very carefully, using identical portions of the same spraying solution to cover the same amount of oven.

In a 500-hour salt-spray test, a gold reflector showed only a 15% reduction of produced energy, in spite of its appearance of being badly damaged. In another test, a clear lamp and gold reflector combination was subjected to a fogging spray of gray paint equal to that applied to a lamp of the self-contained reflector type. The loss again ranged from 14 to 16%, and was not materially different in the two types of equipment.

These tests bear out the previously established fact that any type of infra-red oven of good original efficiency requires about the same amount of maintenance

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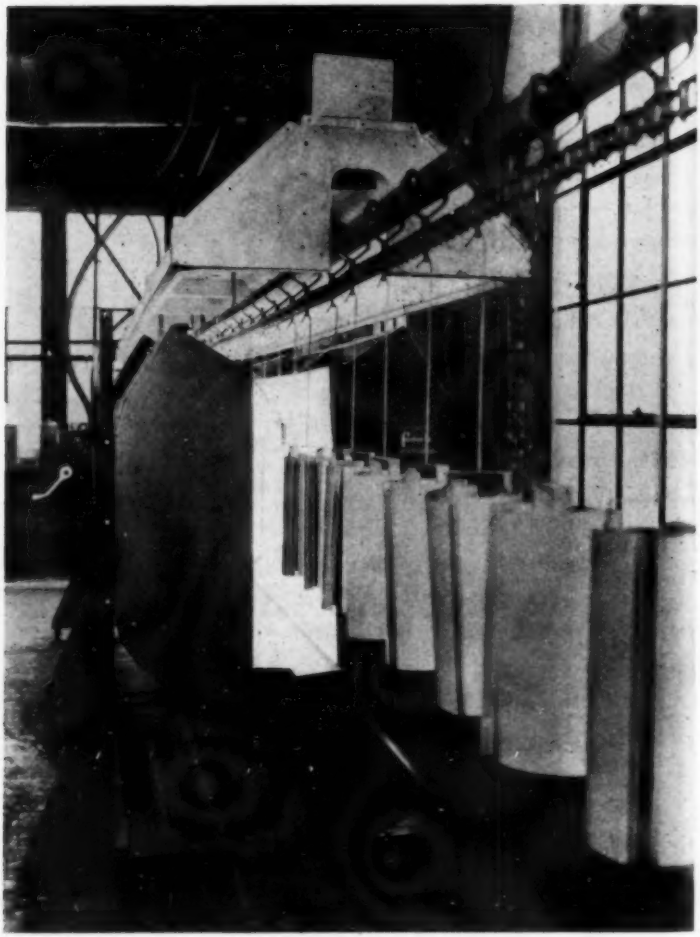
or depreciates at about the same rate, if not maintained in first class condition. It now appears that where the underlying specular surface is not damaged, the depreciation in temperature caused by an overcoating of dirt will not much exceed 16%. Where separate reflectors are involved, shallow designs are less affected,



Typical overhead chain conveyor now moving spray painted products through an adjustable infra-red tunnel where the grey enamel is baked for four minutes.

Here is Egyptian's new Baking White Enamel

Resistant to:

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since deep reflectors intercept a larger proportion of energy and may, therefore, suffer a larger percentage of loss.

Two Important Conclusions about Infra-Red Lamp Performance

As a result of these and many other observations, Fostoria engineers have been led to two important conclusions. The first is that the appearance of the infra-red equipment may be at least partly unrelated to its performance insofar as the reflection of radiant energy is concerned. In other words, an apparently dirty reflector may be clean in the spectrum of invisible radiation.

A partial explanation might be that a particle obstructing the path of a ray of energy that is opaque to infra-red has, in itself, a reflection value which may be rather high. This redirects a portion, perhaps large, of the total energy toward the work. Since no energy is ever lost, but only translated, a particle of dirt that absorbs a large amount of energy becomes quite heated and is thereby itself converted into a radiator, and perhaps quite a good one since the emissivity and absorptivity of gray bodies are equal.

A recent conclusion is that factors of maintenance and depreciation do not differ materially in the two general types of infra-red ovens, that is, the clear lamp plus good reflector type or the self-contained reflector lamp type.

Matte finished oven interiors, such as aluminum painted, while having an initial reflectivity of as much as 75% that of gold, deteriorate more rapidly due to collections of dust and dirt on the rougher surface. Moreover, they may not be easily cleaned for somewhat the same reason.

Both clear and reflector type lamps are subject to a certain amount of depreciation throughout their life, dependent to some extent upon the conditions under which they operate. In the case of the clear lamp plus reflector combination, this will usually not exceed 10% in the life of the lamp, assuming normal reflector maintenance. With the self-contained reflector type lamps, tests have indicated that this may range from 10% to 15% within the life of the lamp, based on normal burnout. Certain types of corrosive atmospheres call for special equipment, lamp bases, sockets, etc., to withstand elements of destruction. Among these may be cited some types of foundry applications, muriatic acid wool carbonizers, fluoric acid applications and others.

Effectiveness of Infra-red Lamps As They Become Older

On the basis of the foregoing it is not difficult to understand that in some installations, where the matter of maintenance is lightly considered and reflectors and lamps are infrequently cleaned, production cycles do not fall off as badly as might at first be expected. These considerations may apply to a large number, perhaps even to a majority, of jobs. On the other hand there are some with a small margin of operating latitude which consequently require fairly close maintenance and cleanliness. These are usually of the short cycle, 3 to 6-minute class, since there is a narrower factor of safety at the shorter end of any paint baking schedule.

In those cases where deterioration and maintenance problems exist, however, an automatic voltage control system which will maintain a constant radiant energy level, regardless of wear, dirt or voltage

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CODUR is a line of high-gloss, synthetic baking enamels especially designed for a one-spray coat application on molded (phenol formaldehyde) plastics. They have excellent color retention and bake to a very hard mar-resistant surface. CODUR is available in most colors in plain enamels and many metallic colors. M & W also offers air-drying or baking finishes for other plastics: acetates, butyrates, methacrylates and others.

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fluctuation, is completely practical. Very little use has been made to date of this type of control equipment, but it is believed that postwar planning may do well to consider something of the kind for certain applications.

Make a "Best Methods" Checkup Now

THE QUESTION of looking into more efficient methods and mechanical equipment is always timely. Make it a point to find out from your men who know, whether spraying, dipping, tumbling or roller coating is the best procedure for the various phases of your finishing routine.

Is a wet-or-dry type of sandpaper better to use than dry sandpaper? If you are not sure, begin asking questions. Should a blower duster be used, or a hand duster for removing sanding dust and other dust or dirt just before applying a coat of finish? How about a powerful industrial vacuum cleaner?

Should wiping rags be bought and burned up after use, or should they be temporarily stored under water and then washed in the factory or laundered elsewhere, or should rags be rented from an outside source on a pound or piece basis?

Should the mixing of paints and the addition of thinners be one man's special job, or should each sprayer or dipper mix his own? What time-saving expert can figure the amount of money, time and energy that can be saved by eliminating one or two material changes a day, just by increasing the size of the pressure tank or other source of paint supply to the sprayer?

Shall one man be assigned to clean out all the paint hose and guns, or shall it be left to each individual spray operator?

These things just mentioned are some of the subjects that should be given attention. Decisions must be made and one definite procedure should be established as standard, to relieve management of constant production schedule breaks and snarls. The cost of making improvements may, at times, be large but most production improvements have a funny habit; they pay their own way.—B. R.

New Bus Colors

ADOPTION of a new color scheme for both the interior and exterior of buses, is announced by the Virginia Transit Co., Richmond, Va.

Exterior of the buses will be two shades of red and cream, in place of the present blue and cream or aluminum and green. Interior walls will be painted in light green. This new color scheme was decided upon after several experiments, and after studying color styles of buses used in many other cities.

New buses on order will be painted in these colors at the factory, as soon as they are completed and are ready for delivery.

The company believes that the new red-and-cream color scheme will make the buses easier for passengers to see by night or day. Officials predict that the prominent coloring of the vehicles will help make for safer handling in traffic.

The shades of light green for the interiors are designed to make riding more pleasant by eliminating glare and presenting a cool and more restful appearance.

CRITICAL CONSIDERATION *of our* POST-WAR SHIPMENTS

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PROTECTIVE AND DECORATIVE *Finishes for Plastics*

BY ROY B. ANDERSON
Industrial Research Division
Wipe-On Corporation

A paper presented before the Society of Plastics Industry on Feb. 1, 1946, at Chicago, Ill.

THIS SUBJECT of "Protective and Decorative Finishes for Low Pressure Laminates*" may have particular significance at this time because the extensive sales possibilities of plastic products may depend to a large extent upon the appearance and performance of the finished product.

Until the time that it is possible and economical to provide any necessary factors of appearance and performance by the application of a color or protective agent during the molding process, the problem can only be met by a surface coating applied after molding.

I have included other molding materials in this discussion of finishing, as well as the socalled low-pressure laminates.

Suitable Coating Depends Upon The Product and Its Use

The finishing of these new and interesting laminates and molding materials presents many new problems. In our research and study to meet these problems, it was apparent that coatings had to be specifically formulated that would be adaptable to the different types of plastics, as well as the end use of the product made from these materials. The reason for this is due to the following:

1) All coatings are not specifically adaptable for all types of material.

2) The large variance in surface conditions—from very smooth and highly polished surfaces to extremely rough and sometimes quite porous surfaces.

3) The ultimate use of the laminate affects the qualities which must be provided in the coating.

Aircraft finishing requires coatings that will meet sudden and extreme changes in temperature, as well as resistance to moisture, flexing and weathering.

Refrigerator use, requires coatings that are moisture and grease resistant, as well as hard surfaces that will resist abrasion and chipping.

Domestic equipment products that are subject to washing or contact with soap must be alkali resistant.

Trays, table tops, medical kits, and other household furnishings should be resistant to alcohol.

*The word "laminated" or "laminates" means consisting of or arranged in layers or thin plates, one upon the other. Laminated plastics are produced by the application of heat and pressure upon superimposed layers of paper, wood, fabric or other porous material which has been impregnated with a body of suitable varnish, synthetic or plastic.

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Products for marine use, such as boats, bouys, floats, etc., must have coatings which will resist weathering, moisture absorption and abrasion.

Luggage and other containers must have coatings which will be resistant to moisture and abrasion.

Materials used in or around storage batteries must be resistant to sulphuric acid.

Materials used in the electrical field often must be finished with coatings that have high dielectric strength and are good insulators, as well as being resistant to moisture and fungus growth.

From the foregoing it can be readily seen that unless the plastic material itself provides the necessary appearance and requirements for the end use of the product of which it is made, the salability of the plastic material will be limited. It should be of interest to the industry to know that considerable research has already been made to help solve the many varying requirements for coatings.

Coatings for Resin-Bonded Plywood Aircraft

The companies with whom I am associated had the privilege of carrying on extensive studies of finishes for wood and other laminates used as metal substitutes for war and civilian purposes. This study dates back to 1935 when resin-bonded plywood was first recognized as an ideal material for airplane construction.

During the war, thousands of trainers, fighters, target airplanes and gliders were constructed from resin-bonded plywood. The largest plywood airplane ever constructed, the Hercules, with a wing span of over 300-ft. and powered with 8 motors of 3000-h.p. each, is about ready for its initial flight in California. Many of these plywood planes, including the Hercules, with its hull that stands 30-ft. high, were protected with a fine quality finish.

Physical Properties of Materials To Be Finished

In studying this problem of finishes for low-pressure laminates and other molding materials, the following types were included:

Fabric base
Glass-cloth laminates
Paper base
Resin-bonded plywood
Paper laminate over wood
Cordage Fiber
Other molded materials

The first requisite for a satisfactory coating is that it gives the required protection and decoration for the longest time possible. Although in the transportation industry, the finish on airplanes, boats, trailers, etc., is not expected to last for their entire life, and refinishing of same must be considered, the finish on radio cabinets, miner's helmets, electrical insulation and even caskets, must last during the life of the product. Therefore, the coating must have good adhesion and freedom from cracking or other surface failure.

Adhesion of Coating to Plastic Surface

Adhesion of surface coatings to plastic products sometimes offers a difficults problem because of the hard polished surface of some of the materials after molding. Take this commercial type of enamel, for example on a glossy, hard, high-pressure molded surface, and note how it flakes off under abrasion. Here is another enamel that was specially formulated for the same material. This is very difficult to abrade.

Unless the coating has suitable adhesion, you cannot expect good

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appearance and long life. Sometimes it is necessary for a coating to have resistance to cracking under the flexing and abnormal changes in temperature. This requires flexibility in the coating as well as good adhesion. This fabric-base laminate was finished with two different coatings—one a commercial grade—and you will note how it cracks under flexing, while the other coating remains sound. Wide ranges in temperature may set up such stresses in a surface coating that it may crack unless it has satisfactory flexibility.

Appearance Factors in Relation to Finishing

From an appearance viewpoint the greatest problem of finishing these materials is one of smoothness of final coating. Some of the laminates are very rough; others are somewhat porous. A proper filler, sealer, or surfacer, will help meet this problem, while at the same time consideration must be given to application methods so the cost of finishing will be kept to a minimum. (Demonstration panels of fabric, glass, and wood demonstrate the need of proper filling for smooth appearance.)

Although a surface coating may possess all of these factors and provide good protection and decoration, trouble is sometimes encountered through improper methods in its application by the finishing department, and may cause complaint in service. The treatment of butt and scarf joints in plywood assemblies may be the source of considerable trouble. The treatment, too, of edges should be watched. Improper puttying of nail holes, screw holes and other indentations could cause much trouble.

Due to the wide range of uses of plastic products in industry and their many applications in and about the home, great emphasis must naturally be placed upon the finish, so that the various service requirements will be satisfied.

Finish Must Withstand a Wide Range of Uses

Take for example the use of molded materials for containers or display racks for storage batteries. Here the finish must withstand sulphuric acid. The use of plastic products in the chemical industry requires coatings which must withstand many different acids and alkali solutions. High alkali resistance can now be built into surface coatings, thus opening up the field of plastic materials for uses requiring proof against caustics and other alkaline compounds.

Resistance to weathering is of great importance in coatings for outdoor signs, truck bodies, airplanes and prefabricated houses.

Serving trays and table tops require coatings that will not be harmed by alcohol and hot dishes or liquids.

Resistance to Finish to Various Kinds of Service

Resistance to scuffing and abrasion is necessary for coatings that may be used on laminates or other molded materials—to withstand chipping when radio cabinets are subjected to rough handling. Impact resistance is also important in the coating when applied to molded boats, and for airplanes to resist hail against airplane housings in flight, or to little Johnny's rough treatment of his new toy.

Coatings are also available to withstand the burning cigarette stub—of possible importance in the use of metal laminates for cigarette trays or table tops.

Consideration must also be given to the use of plastic products in

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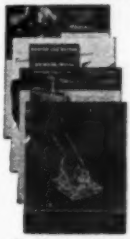

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the electrical industry where high dielectric strength is required, as well as resistance to arcing, moisture, fungus and mildew.

Coatings to meet many of these factors of acid and alkali resistance, weathering, scuffing, burning, hot liquids and dielectric requirements are now available.

Why a "Tailor-made" Finish Is so Desirable

There have been so many new developments in the formulation and application of coatings that it would be advisable to give the paint supplier samples or panels of the plastic material to be coated, desired application procedure, and end use requirement. Although paint, enamel, varnish, or lacquer, readily available in the open market, may accomplish satisfactory results for some plastic products, the plastic manufacturer or user will probably have greater satisfaction through a "tailor-made" coating, developed for the type of molded material in question, and for its ultimate end use.

Some of the newer "tailor-made" finishes developed by paint manufacturers include resin and oil combinations of the following types:

Melamine
Phenol formaldehyde
Urea formaldehyde
Alkyd
Ethyl cellulose
Carbic
Vinyls
Nitrocellulose
Vinyl butyral

Other oleo resinous combinations, and combinations of the above.

Just as you must select the proper resin solution or filler, depending upon the type and use of your molded products, so must the paint manufacturer use care in the compounding of his coatings. Because of the wide range in these new synthetic materials, it is now possible for the formulator to develop "tailor-made" coatings for a wide range of products and uses.

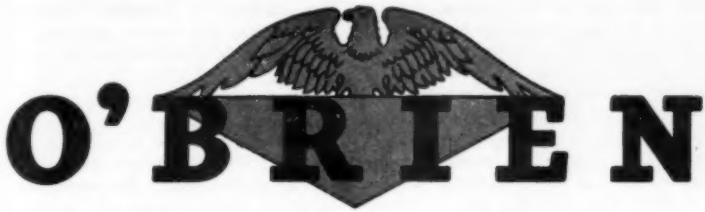
Methods of Applying Coatings To Plastic Products

The application of coatings to products of plastic need not be too much of a problem. For those who do not wish to do this finishing themselves, there are many finishing shops about the country who specialize in this work. They are prepared for surface treatment operations when required, for using any of the various methods of application, force drying and baking. There are about 80 good finishing shops about the country.

For those manufacturers of plastic products who wish to do the finishing themselves, there are available many different methods of application and drying. The method to be used will depend upon the size and shape of the product, quality, speed, system, etc. The various methods of application include, dipping, tumbling, brushing, spraying (both manual and automatic), roller coating and vacuum impregnating. Among the various methods of drying, you have available baking ovens, force drying rooms, infra-red, induction, doorless force drying tunnels for continuous operations, as well as normal air drying.

Refinishing Some Plastic Products Must Be Considered

It is unfortunate that so little thought is given to the problem of refinishing. In the marine industry, for example, the refinishing of pleasure craft is generally done by the private boat owner or boat yard. If the coating on this boat fails by cracking, it is rather difficult and expensive for that private owner or boat yard to remove all



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of the coating by sanding, blow torch or paint remover in order to get down to a solid surface before repainting. Many boat owners possibly appreciate this problem.

The boat manufacturer will help create an increasing amount of goodwill among his customers by finishing his boats initially with a coating that will not fail by cracking. Coatings are now formulated for this purpose that fail by gradual chalking, so that when refinishing is required, a light sanding is all that is necessary to produce a good surface.

Shortage of Raw Materials

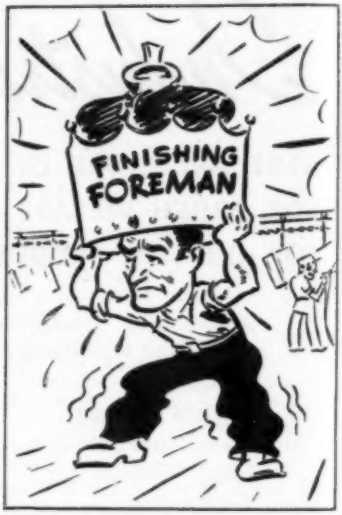
Unfortunately the paint industry, like many other industries, is faced with a shortage of many different raw materials used in manufacturing. This situation is even more critical now than during the war years, consequently it is recommended that new uses for coatings be planned and timed as far in advance as possible, thus helping your paint supplier to meet his manufacturing schedules.

Foreman Finisher's "Easy" Job

MANY finishing foremen should be wearing a medal of honor for services rendered, besides getting the usual cash bonus awarded by some companies. Finishing foremen have an endless task of being on the righ spot at the important moment, but in their life of romance in color they have many a cloudy day.

A finishing foreman is expected to keep production moving. Often he has to dash around corners, run into trucks and pull or push merchandise into different places. He has to get around to all painting stations at frequent intervals to see that the colors and coating thickness are according to plan.

Rags, dirt, spilt paint, leaky drum faucets, wrong air pressures, and minor defects in working equipment must be noted and corrected by this bulwark of the finishing department. He must keep in mind schedules of merchandise

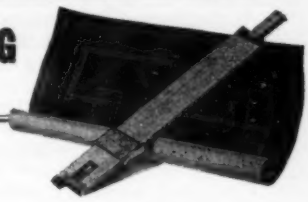


"Uneasy lies the head that wears a crown."—William Shakespeare.

in various stages of work; must make out finished merchandise reports; must answer telephone calls to get this or that order out in a hurry. Polak Joe or Booboo the sprayer must be soothed; Rudolph the sanderman has to be sent to first aid for a sliver pulling job. Then the payroll department calls up, wanting to know whether McCarthy worked till 4:15 P. M. or 4:25 P. M. two weeks ago.

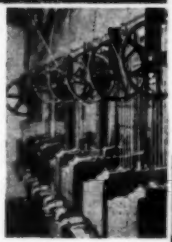
Suddenly he finds out that Henry

OVEN ENGINEERING NEWS



IOE Cable Lacquering Systems Set New Efficiency Standards For Insulated Wire Industry

Above: Controlled-tension payoff stands for an eight-end wire and cable lacquering system designed, built and installed by the Industrial Oven Engineering Co. Lacquer pots shown at right.

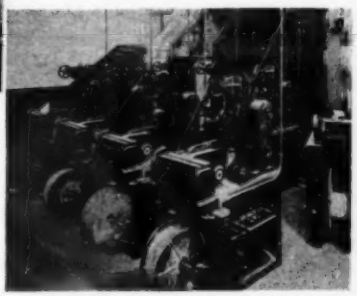


THE lacquering equipment shown on this page, installed in the plant of a large Eastern wire manufacturer, is capable of finishing up to 600,000 lineal feet of medium sized wire and cable per eight-hour shift, including saturating, lacquering and baking, in a single continuous automatic process. The wire produced has greatly improved surface gloss, cross sectional accuracy and dielectric strength.

In other industries, the same general type of system is equally efficient in the impregnating and coating of such materials as paper, textiles, tape, rope, fishline, surgical suture, etc.—in short, any continuous material which requires processing and baking.

Get the Whole Story — Write today for a detailed description of the basic **IOE** cable lacquering system.

Below: Eight windup machines corresponding with payoffs in photograph left above. These constant-tension variable-speed units draw wire through the entire system, winding it onto reels after lacquering and drying.



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has forgotten to order some wet-or-dry sandpaper and pumice stone, so he has to run and beg for a rush delivery of working supplies. Then Big Bill, the superintendent, stops him to tell about that swell dinner he had at Joe Steins—steak and wine and music. Suddenly Big Bill changes the subject to ask, "How come we aren't getting out more work?"

The day goes on. Uncle Steve, owner of the place, hurries in with a little piece of inconsequential value and starts to raise the roof because it was given too good a finish; the old man almost bursts a blood vessel yelling his head off about it.

After yessing the superintendent and boss, the foreman bumps into Vales, head laborer, who has labor pains and threatens to quit because one of his fellow workers said that he was getting away with murder by stalling on the job. Mr. Foreman is now slowly reaching the end of his rope. Finally the bell rings. Oh! It's quitting time. But holy mackerel, he's got to complete a few more reports.

Finally home to a nice supper, a pipe, house slippers and the radio. Maybe that's what you think. Before he gets his coat off his wife meets him at the door with, "Mrs. Augustine has a new fur coat; mine is old already; I got it last year. Look at you. What are you so tired about? You sure look droopy. I should have married that Jenke fellow." And so on.

Brother, whoever said a foreman has an easy job had better count to ten. Poor foremen, I sympathize with you, but it's your fault for being so good. I'm glad I'm not good.—NORMAN ABRAMOVICE.

Experience With Hot Lacquer

By R. DORAN

SOME YEARS ago a salesman brought in a lacquer to be sprayed hot. I was asked to spray this sample over a sanded sealer. The salesman did not know what temperature the lacquer should be sprayed, so it was up to me to experiment. First I tried a temperature of 140° F. I heated water in a jacket containing a coil through which the lacquer was forced by a pressure pump.

The temperature of 140° F. was too low to insure a good flow. Then I increased it to 160° F. This temperature was too high. The hot lacquer showed a pebbled effect, due to too much heat which caused the formation of a resin film through which the escaping solvents burst, forming bubbles on the surface. The temperature was reduced to 150° F. and the lacquer flowed out to produce a smooth rich finish. Sprayed pieces were allowed to air dry for one hour. Then they were placed in a forced hot air drier for three hours at a temperature of 110° F. The pieces were removed and allowed to cool at room temperature. The finish was perfectly satisfactory.

The next improvement in hot lacquer was an air-drying lacquer applied in the same manner, but air-dried for three hours. Finished products were then ready for packing.

About six months later another improvement in hot lacquer was made. This new lacquer was "a 37% solids" with a 55-second viscosity, measured with a No. 4 Ford cup. It was used over a 2-tone brown wiping glaze. The glaze was allowed to dry over night; next day the glaze was rubbed with

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heavy burlap until smooth. No sealer coat was put on. The coat of hot lacquer was sprayed on over the glaze coat and allowed to dry for three hours.

Hot lacquer is unusually successful because it allows the use of high solids and high viscosity at the same time—thereby supplying both durability and "body" all in one.

When correctly formulated and properly applied, hot lacquer gives a beautiful finish which is impervious to cold checking on both hard and soft wood. Blooming is almost an unknown complaint with hot lacquer. Hot lacquer can be purchased in gloss, semi-gloss, rubbed effect or in flat sheens—all of which are lasting in their respective sheens.

By the use of a special glaze, force dried at 140° F. for twelve minutes, followed by a "mossing" operation, and the force-drying of hot lacquer at 100° F. for 10 minutes, a manufacturer is able to complete a finish in 25 minutes.

Perhaps the remainder of this article should not be published, but I have found the following to be facts from my own experience: There are a number of companies manufacturing hot lacquer equipment on which they use pressure pumps for circulating the lacquer. This system is successful—except that the pumps are continually leaking and need repacking. Another drawback is the failure of their representatives to sell the equipment in accordance with the work to be done. For instance, where the lacquer is being continually sprayed, the heating unit must be large in order to give the lacquer sufficient time to get hot. Otherwise the operator has to wait.

Where the operator is using the lacquer rapidly, a steam-heated water jacket 10-in. in diameter and 30-in. high, with 12-ft. of ¾-in. copper tubing for the lacquer to pass through inside the jacket, is very successful and can be easily made. A pressure tank with a 5-gallon capacity can then be used to force the lacquer through the heated jacket to the spray gun.

A spray gun equipped with the proper nozzle for spraying hot lacquer should always be used in order to obtain good flow and proper atomization.

Despatch Oven Elects Officers

At a meeting of the stockholders of the Despatch Oven Co., in March, Mr. A. E. Grapp was elected Chairman of the Board of Directors. As founder of the company over 44 years ago, he has seen the steady growth of his organization from a small one-room, one-man company to one that now occupies over 70,000-sq. ft. of manufacturing and warehouse space, employing over 250 persons.

Mr. H. L. Grapp was elected President and General Manager. Son of the founder of the company, he came up the hard way, working in the factory during summer vacations when a boy, and then steadily after he returned from abroad after World War I. He is well qualified to assume the responsibilities of his new office as he has been working over 28 years on practically every machine in the factory and has occupied every executive office.

Elected Executive Vice President and General Sales Manager, Mr. F. H. Faber is a typical example of the company's policy of picking its executives from within its own ranks. Starting with the company in 1928 as a stenographer, he worked steadily up through the Engineering and Sales Engineering Departments. As General Sales Manager, he anticipates a 41% increase in industrial, laboratory, bakery, specialty, export and finish baking oven and furnace sales.

Former Secretary, Mr. G. M. Lund, was made Vice President and Secretary. Mr. Lund came with the company eight years ago as Purchasing Agent; was promoted to Comptroller and later made Secretary. He has watched the assets of the company increase over 500% since 1938 and predicts a steady growth in the net worth of the company.

All officers were re-elected directors for the ensuing year.

PAINTING ACCESSORIES for REFRIGERATORS

PART ONE Metal Cleaning and Surface Preparation

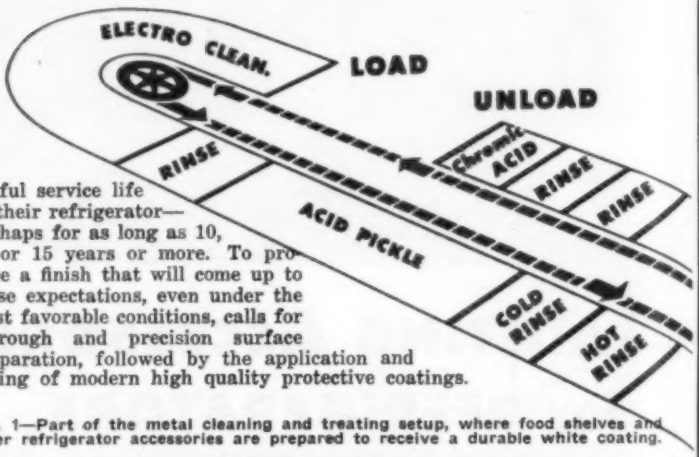
Manufacturers of gas and electric household refrigerators have a volume market to supply. The public is definitely sold on the merits of these products and knows the names of the leading makes as well as it knows the names of modern automobiles. The leading refrigerator companies are well aware of their responsibility and opportunities, now and in the future. Competition among them is chiefly centered upon such essentials as attractive design, improved utility features, safety, quiet operation, freedom from trouble, low operating and maintenance costs, and an enduring, stain-proof, non-discoloring finish of just the right sheen. Every purchaser of a modern refrigerator confidently hopes to get these essentials.

Most of the household refrigerators and some of their accessories have a white enamel finish. People expect this white protective coating to retain its original luster, sheen and whiteness during the

Servel's setup for cleaning and treating surfaces of food shelves and other accessories for its new gas refrigerators.

By JOHN WRIGHT, Engineer

Fig. 2—Diagram of completely automatic machine wherein refrigerator shelves and accessories are cleaned and surface treated in preparation for putting on (by dipping) the protective coatings of white synthetic enamel. (See Fig. 1.)



useful service life of their refrigerator—perhaps for as long as 10, 12 or 15 years or more. To produce a finish that will come up to these expectations, even under the most favorable conditions, calls for thorough and precision surface preparation, followed by the application and curing of modern high quality protective coatings.

Fig. 1—Part of the metal cleaning and treating setup, where food shelves and other refrigerator accessories are prepared to receive a durable white coating.

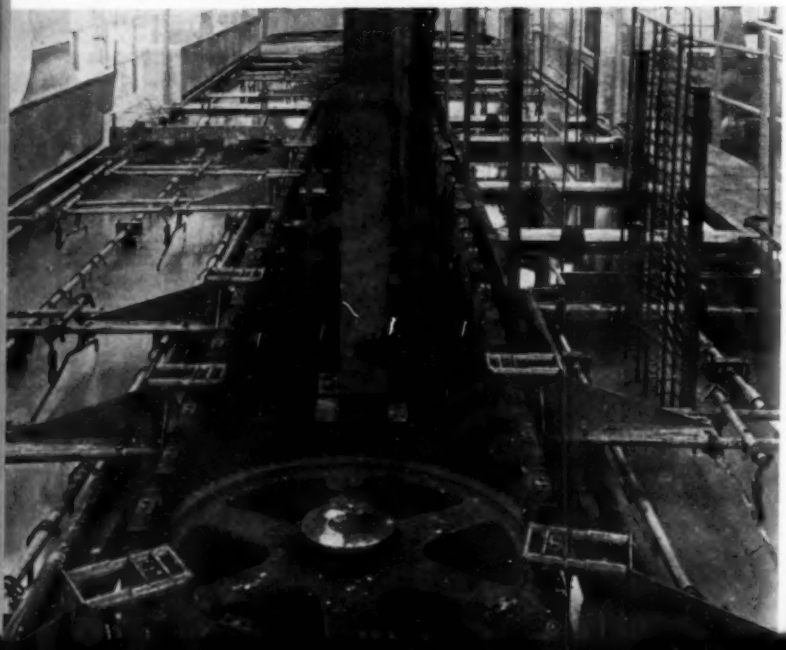
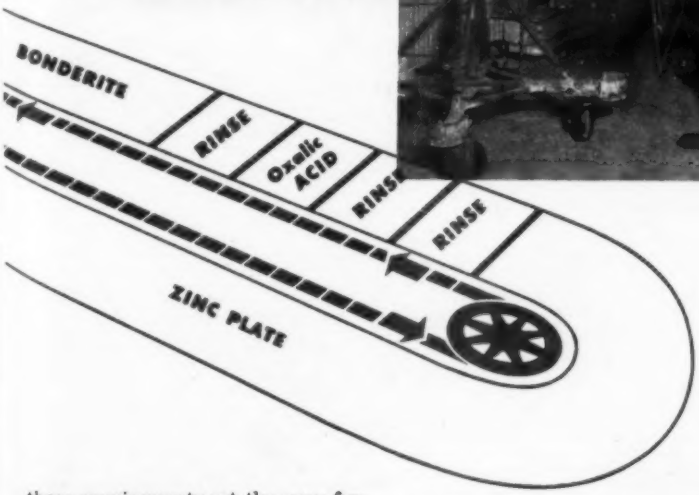


Fig. 3—Hanging racks of food shelves on carriers, which hold them properly while the conveyor and elevators move them into and out of all metal cleaning and treating tanks.

Before explaining Servel's modern setup for cleaning metal parts and pre-treating their surfaces to prevent rust, and to insure perfect adhesion of the alkyd-urea formaldehyde base finish, let's look into the rigid specifications demanded for food shelves, since



these requirements set the pace for the surface treating and protective coating of all other refrigerator accessories.

Specifications of Coating for Food Shelves, etc.

1) Moisture Resistance: The finish must withstand 1000 hours in 100% relative humidity at 110° F., controlled temperature without any evidence of breakdown.

2) Abrasion Resistance: A minimum of 1000 wear cycles shall not abrade the top finish coat. Test is conducted with a mechanical device capable of moving a weighted pint milk bottle in the same path for the required number of cycles.

3) Flexibility: The finish shall withstand a 180° bend on a ⅛-in. mandrel without showing any evidence of hair-lining, cracking, flaking or any other breakdown.

4) Film Thickness: Complete opacity and excellent depth of color shall result from a cured

film thickness of 1.6-mils on a 2-coat system. Minimum thickness on each coat shall be 0.0008-in.

5) Gloss: Shall be a minimum reading of 85 on a 60° glossmeter.

6) Color Retention: The finish shall show no change of color after storing test panels in a dark cabinet for a period of 90 days.

Add to these finish specifications

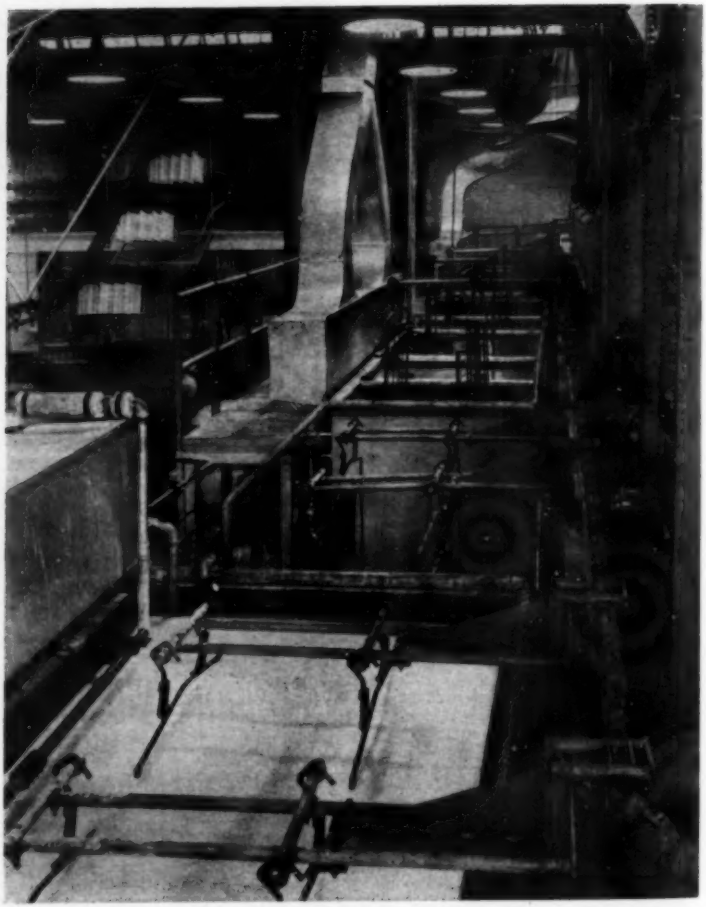


Fig. 4—Another view overlooking one row of treating tanks and part of the conveyorized equipment (at right). Notice the ventilating ducts at upper middle of picture. Part of the dip-coating conveyor line appears at upper left.

New high-solids lacquer

The new high-solids lacquers can give twice
covering power of old-style lacquers . . . ena
operators to complete more pieces in a gi
time . . . because they provide far thic
coatings when dried. Each coat now d
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solids, less solvent. Yet, despite the n
finishing speeds and economies afford
their durability and appearance are
sacrificed. For production-line finishes on met
wood, fabric, glass, rubber, leath
paper, plastics—use high-solids lacquers and sa

LIKE GIVING EACH SPRAY OPERATOR TWO GUN

Ask your lacquer supplier for complete details and application data on these new time-and-money-saving lacquers, as they become available. Hercules does not make high-solids lacquers, but concentrates on the production of the highest quality nitrocellulose from which they are made.

CL-53A

HERCULES

Cellulose Products Department
HERCULES POWDER COMPANY
928 Market St., Wilmington 99, Del.

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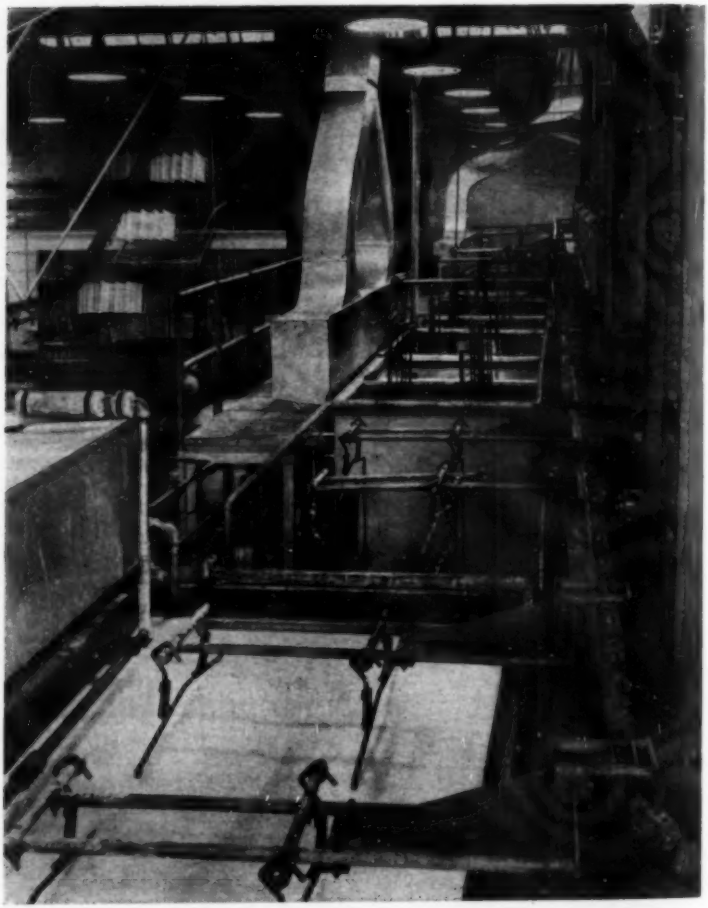

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CL-55A

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HERCULES POWDER COMPANY
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metal cleaning, zinc plating and bonderizing prior to finishing, and you have quite an order from a production standpoint. The zinc plating and bonderizing of all accessories prior to finishing has a dual purpose. First, it produces an excellent surface to receive and tenaciously hold the finish coats. Second, it presents a permanent, ultra safety measure against any possible corrosion.

Conveyorized Automatic Machine for Treating Metal Surfaces

A comprehensive study was made of various practical ways by which we could accomplish our objective. We compared the costs of manual still tank preparation using a 12-man crew per shift, and a fully automatic machine using a 3-man crew per shift. Our figures indicated that, through savings, the cost of the automatic machine would be amortized in one year's operation.

This completely conveyorized automatic machine, as illustrated in Figs. 1 and 2 is 66-ft. long, 12½-ft. wide and 6½-ft. high. It is a complete unit with a powerful conveyor operating around the loop, and is synchronized with conveyorized elevators which lower and raise the racks of food shelves and other accessories into and out of 14 tanks with perfectly timed precision.

The metal cleaning, surface treating machine requires an operating floor area of 66-ft. by 18½-ft. by 14½-ft. (ceiling height). Racks on which accessories are hung measure 60x30x7⅞-in. Two racks are on each carrier, and carriers, are spaced on 3-ft. centers.

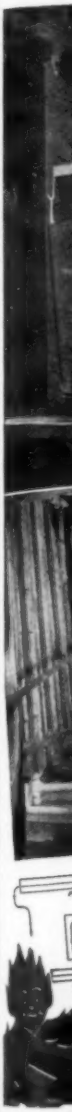
Notice the close-up view marked Fig. 4, taken at station No. 2 and looking to your right on the diagram (Fig. 2). This view also shows the method by which carriers are advanced in the various tanks by horizontal chain, and also how it is possible for each elevator mechanism to lift a carrier from one station, advance it to the next station, and then lower it to rest on the powerful horizontal chain.

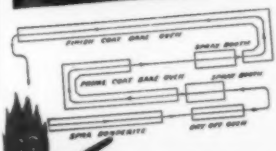
With a chain speed of 2-ft. per minute the machine has a capacity of 84 racks per hour. Of course, the number of food shelves and other accessories that can be hung on a rack is dependent upon the size of the items. All acid and acid rinse tanks are lined with rubber. A complete and adequate exhaust system with ducts at tank level, as shown in Fig. 4, removes all vapors, fumes and gases.

Sequence of Cleaning, Plating and Bonderizing Operations

Let us consider the preparatory operations on food shelves which are hung on racks, as illustrated in Fig. 3. First loaded carriers are elevated, moved to the metal cleaning tank, and then lowered into it. This tank contains a very hot alkali solution. Grease and dirt are removed from the surfaces electrolytically in this solution, the action being the reverse of plating. Actually, in a sense, it is a deplating or degreasing operation. Time in this tank is six minutes. Then follows a 10-second rinse in clear water.

Next station is the pickling tank containing muriatic acid. Here scale is removed and the surfaces are slightly etched to receive zinc plate. Time in pickling tank is seven minutes. Two 10-second rinses follow, first in cold water because acids are more soluble in cold water, and second in hot water. Now the work is lowered into the zinc cyanide tank, where the treated surfaces are zinc plated. Time, 13-minutes. To give you an





Rust-proofing unit of a typical
DESPATCH FINISHING SYSTEM

An integral part of a typical DESPATCH Finishing System, this 78-foot, 5-stage unit rust-proofs new frozen food cabinets at the big St. Cloud, Minn., plant of the Franklin Transformer Mfg. Co.

Expertly designed by DESPATCH to fit the space-saving layout shown below, this unit processes a cabinet in 15 minutes. Endless monorail conveyor carries cabinets and parts through hot alkali, hot water rinse, Spre-Bonderite, cold water rinse and chromic acid rinse. In each section spray nozzles (492 in all) direct uniform flow of water or chemicals onto cabinets at desired temperature and pressure.

This complete DESPATCH Finishing System helped this company reconvert from a war plant to a civilian industry IN LESS THAN 3 MONTHS!

Single Units or Complete Systems

PROMPT DELIVERY
IMMEDIATE INSTALLATION

DESPATCH
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idea of the size of this tank, it holds 7800 gallons. Following plating the work is given two 10-second rinses in clear water.

The tenth tank along the line (see Fig. 2) contains oxalic acid. The action of this acid on the zinc-plated surfaces is to act as a "leveler", and to again provide a slight etching of the surface. Time one minute. Next follows a 10-second rinse in clear water. At the 12th tank the work is Bonderized. Time, one minute. Again two 10-second rinses follow, one in cold water and one in hot water. Fin-

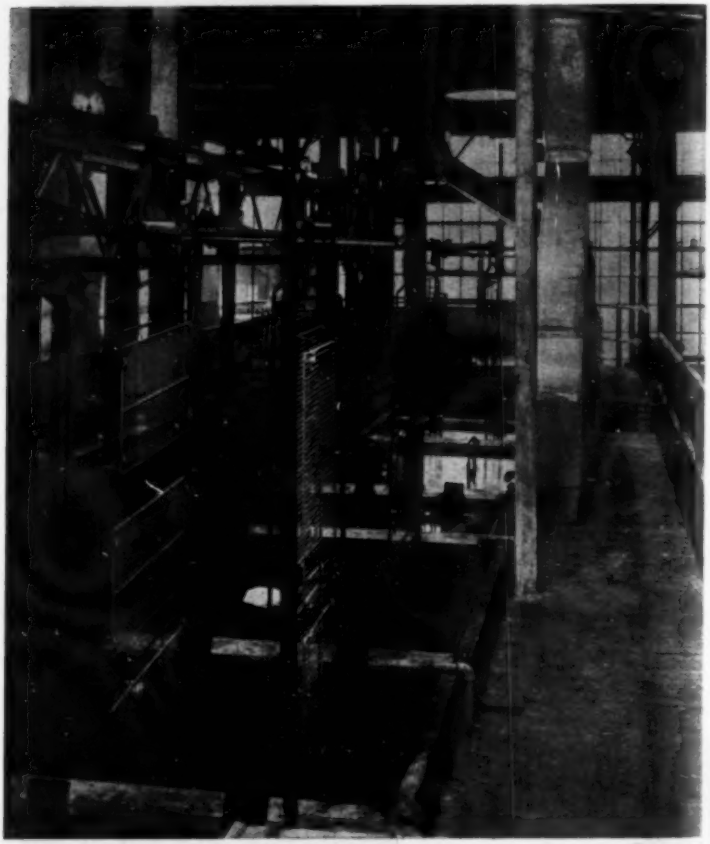


Fig. 5—A close-up view showing racks of shelves being automatically lifted from tanks (looking toward the unloading end of loop diagramed in Fig. 2).

Complete coordination of all component parts

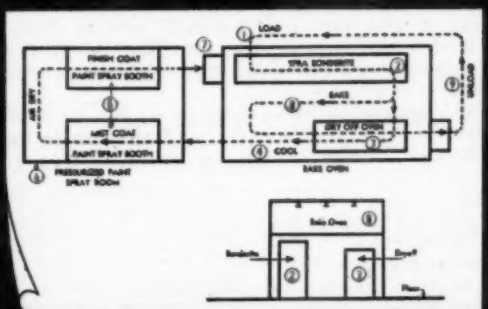
ROSS *Fast* Finishing System

1 & 9 Ample Space For Load Unload

2 Spra Bonderite Six Stages

3 Burn Off Moisture

4 Cool Before Painting



5 Water Wash Type

6 Controlled Air

7 Paint Flash Before Bake

8 Three Pass Oven

through ONE company from layout to output!

That **ONE** company is the J. O. ROSS ENGINEERING CORPORATION with the engineering knowledge to understand your needs and with the complete facilities to supply them. The original design, all necessary equipment, supervision of installation — the complete job is handled in a way to achieve

EFFICIENCY • ECONOMY • FLEXIBILITY.

This assured coordination of all component parts results in more efficient operation, lower first cost and maintenance expense; it conserves valuable floor space and produces any required volume of output per hour to meet particular production schedules, at lower unit cost.

Write us your specifications. Helpful engineering data and service will be provided wthout obligation.

ROSS SYSTEMS

DESIGNERS AND BUILDERS OF AIR PROCESSING SYSTEMS

ROSS CONTROL OF AIR FOR MODERN INDUSTRY SYSTEMS

ally, in tank No. 14, refrigerator shelves are given a chromic acid treatment which halts the bonderizing action and provides an additional corrosion inhibitor. Time 20 seconds. Following this final treatment, racks of work are lowered to floor level where they are removed and placed on castered dollies to be delivered to the finish line which adjoins the metal cleaning and surface-conditioning machine. One operator handles this operation.

Daily chemical analyses are made of all solutions used in the cleaning and plating machine. Additions of material are made whenever needed to hold the various solutions within required limits.

Editor's Note: This is the first of three articles by Mr. Wright. In the second, which will appear next month, he outlines dip-finishing, detearing and curing the resin-base protective coating on food shelves and other accessories.

Iron Blue Color

IRON blue, also called Prussian blue, is one of the oldest colors used in paint and is one of the most durable of the blues. Its origin is attributed to an accidental discovery by an ancient alchemist who was trying to manufacture gold.

The first commercial production of iron blue occurred in 1704, when Diesbach, a color maker, burned wood and oxblood together and produced a yellow solution from the ashes. When the solution was heated with an iron compound, the intense iron blue, one part of which in 1000 parts of white paint will show a perceptible blue tint, was obtained.

Production of iron blue in the United States is over 5,000,000-lbs. annually. Iron blue is resistant to acids but is susceptible to attack by alkalis, although some treatments reduce this sensitivity. For this reason it should not be generally used on fresh lime plaster or other alkaline surfaces.—*Pittsburgh Plate Products.*

Davidson to Build Conveyors

Mr. E. S. Davidson, formerly head of Davidson Engineering Service, Winston-Salem, N. C., announces formation of the Davidson Engineering Co. of the same address. The new company, formed in February of this year, has taken over the activities of Davidson Engineering Service and of the Southern Iron Works at Kernersville, N. C., and will operate both as an engineering and manufacturing organization.

The firm will engineer and manufacture conveyor systems, material handling equipment, labor saving devices, special machinery and structural steel items for general industrial use. It will also market its products and those of other manufacturers. The firm's office is Suite 810 Wachovia Bank Bldg., Winston-Salem, N. C.

Mr. Davidson is president of the new corporation. Harold C. Warner, formerly with St. Charles Mfg. Co., St. Charles, Ill., is vice president and treasurer. Perry E. Piatt is secretary and chief engineer. Henry C. Holcomb is in charge of production.

New Man in Va. & N. C. for Advance Paint Co.

The Advance Paint Co., Indianapolis, Ind., announces the appointment of Mr. W. F. Shumate as Sales Representative in the Virginia-Carolina territory. This appointment follows the untimely death of the company's former representative in that area, Mr. Shirley Hurt of High Point, N. C.

Prior to Mr. Shumate's four years service in the Army in World War II, he was actively engaged in furniture manufacturing.

C. G. Piske Leaves Zapon

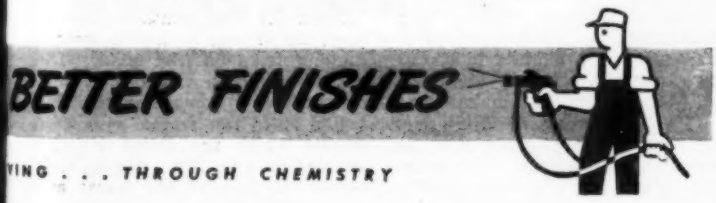
Charles K. Piske has resigned as District Sales Manager of Protective Coatings Division of Atlas Powder Co. at Stamford, Conn., after completing 26 years of service with that company.

Du Pont Control Service will safeguard your production, assure a profitable finishing operation

NOW, when every last penny of manufacturing cost must be cut to the bone to assure profit in a narrow-margin market—it's logical to consider what savings Du Pont can effect in your finishing department. Take as an example, dip tank finishing—where the finish must be kept in use over long periods of time and where the constant addition of extraneous materials and oxygen tends to unbalance the formula.

Here, Du Pont provides regular periodic laboratory analysis of samples taken from the finisher's dip tanks. Specific recommendations are made after each check, advising solvents and materials necessary to keep the finish in workable condition and provide for best finishing results.

This is typical of the dependable and responsible service provided by Du Pont in the entire finishes field. It's the kind of creative engineering that has made possible the remarkable low-unit-cost performance of Du Pont Finishes in so many of America's leading manufacturing plants. E. I. du Pont de Nemours & Co. (Inc.), Finishes Div., Wilmington 98, Del.



Advertising Posters by Screen Process

BY J. F. SULLIVAN
Sullivan Screen Process Co.

Explaining step-by-step procedure of designing, making and using screen stencils for processing advertising signs.

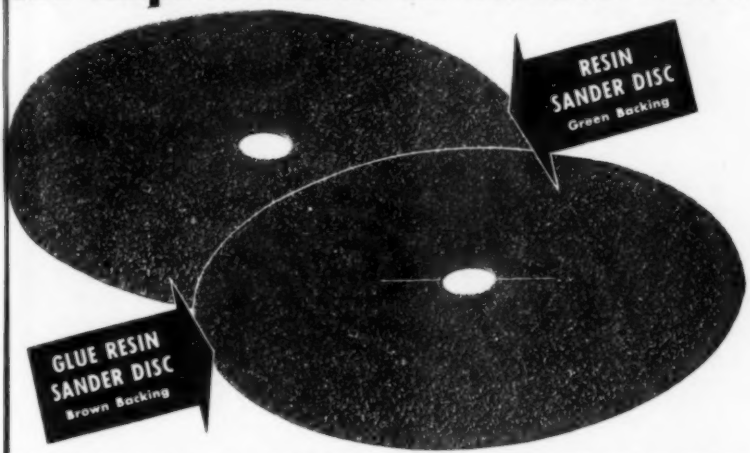
IN OUR ESTABLISHMENT we process a considerable number and variety of advertising signs by silk-screen stenciling. The signs are printed on different kinds of surfaces, including metal, glass, wood, leather, fiber, and straw board. Each kind of surface requires individual attention in regard to the selection of process paint and the method of processing.

Wood Frame Over Which Silk Screen is Stretched

Screen frames of 24x36-in. and less are made of ¾x1¾-in. strips of clear, soft grained white pine. For larger frames, we use the same kind of lumber, but make them of 1⅝x3⅝-in. stock. All joints are mortised and tenoned. The shoulders that form the tenons give added strength and rigidity to the frame. Corners must be square and the finished frame must lie flat. The frames are given three coats of orange shellac before they are put into service.

Since the war, synthetic silk to cover the frames is used in grades ranging from 6XX to 12XX. The silk is stretched tightly but uniformly over the wood frame. We fasten it to the frame with wire staples which are driven in with a stapling gun. The silk extends across the face of the frame and

FIRST NEWS about a BIG improvement in Sander Discs



his is the first information on two new sander discs CARBORUNDUM. They have such improved erformance that we want to get the news to you as oon as possible. A quick listing of advantages ould include:

1. **Substantially longer life.**
2. **Faster cutting.**
3. **Heat resistant.**
4. **Broad application in metal surfacing.**

he obvious benefit, of course, will prove to be more roduction at lower abrasive cost.

he Glue-Resin Sander Disc with brown back- g by CARBORUNDUM will be found to give road usage and unusual service in all metal rfacing operations. It is available in the fol- wing six grit sizes: 16, 24, 36, 50, 60, 80.

The Resin-Sander Disc, with green backing, and same grit selection as the Glue-Resin Disc by CARBORUNDUM is specially recommended for severe sanding operations and the edge-wear grinding jobs which take such a heavy toll of ordinary discs. The backing of both discs are marked for ready identification, usage and reordering.

These discs by CARBORUNDUM are standard in 7" and 9⅛" dia. The Glue-Resin Sander Discs are available in Type D-1 (center hole with slits) while the Resin Sander Discs are available in Type D-2 (center hole only). Prompt deliveries will be made from standard stocks in plant and branch warehouses. Call your CARBORUNDUM salesman or distributor's representative for complete information. The Carborundum Company, Niagara Falls, New York.

or sanding and finishing satisfaction . . .

Call in CARBORUNDUM

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HEELS
Silicon Carbide
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COATED ABRASIVES

Paper, Cloth and Combination
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ABRASIVE GRAINS AND COMPOUNDS

for:
Polishing
Lapping
Pressure Blasting
Finishing

"Carborundum" is a registered trademark which indicates manufacture by The Carborundum Company

clear out to its outside edges. Once the silk is stapled firmly to the wood frame, a coat of shellac is brushed over that part of it which overlaps the frame, therefore it is stapled and "cemented" to the wood frame.

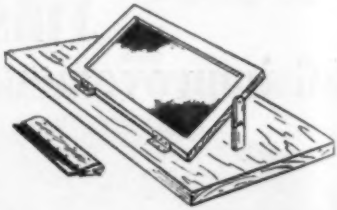
Selection of the grade of silk for any job depends upon the nature of the work and the results desired. For instance, a large part of our work consists of advertising signs such as are commonly seen in city busses, street cars, and on the rear of taxi cabs. On this kind of work we use 6XX grade of silk. For work that has more fine detail and which may be subjected to close inspection we use the finer grades of silk.

Now, with the silk stretched uniformly over the wood frame and fastened down with staples and a a coat of shellac, we are ready to cut the stencil design and apply it to the stretched silk. We use a lacquer-base film stencil for 95% of our work. Reason for this is that it can be cut easily and adhered [fastened securely] to the silk screen rapidly without an "ironing" operation.

Master Illustration Serves as Guide for Cutting Stencils

Suppose we take an advertising sign 23x36-in., such as the one illustrated at the beginning of this article. Our art department develops a full size, full color sign on the same weight of straw-board stock that will be used in actual production. After it has been okayed by the customer, this master sign is taken on to the stencil department where it serves as a guide or pattern for cutting our stencils.

In multi-color stenciling (requiring a stencil for each color) it is generally best to run the lighter colors first and complete the job with the darker colors. Accordingly, the lightest color stencil is prepared first. We do not use thumb tacks or masking tape to hold the sheet of transparent lacquer-base film stencil (and its transparent paper backing) over the master sign, as we find that both of these methods allow some slight movement of the stencil while we are cutting it—unless we are very careful.



Typical screen stencil and squeegee.

We prefer to use a thin coating of light cup grease. We spread a thin coating of this temporary adhesive over the master sign. Over it we lay the film stencil, so the paper backing of the stencil makes contact with the greased master sign. We smooth it out and press it down tight.

The film of grease holds the transparent stencil in place during the tracing-cutting operation—and we can raise and replace the film stencil several times if this is necessary to determine just where to cut between adjoining colors. In multi-color work, smooth accurate cutting for perfect registration is absolutely necessary, regardless of the type of work or the purpose for which it is to be used.

The first stencil film is cut out over one of the light color areas, for instance, over the white or yellow. We use various shapes of

"TWICE AS EASY AS WE EXPECTED"

...with BERRY BROTHERS' Infrabake White No. 107

Coulter-Davis, Detroit, makers of the popular CODACO line of metal kitchen stools, had visions of "two dips and two bakes," but Berry Brothers' postwar technique cut the job in half.

Now, these attractively styled kitchen stools pop out like peas in a pod . . . in beautiful, durable Berry Brothers' Infrabake White No. 107.

A conveyor dip, a drain, a spray touch-up of edges, and one 10-minute, infrared bake and the job is done . . . quickly, easily, economically and in *ever-increasing volume.*

The seat is one spray coat of Berrylac Meteor Red, over the dip coat of white. Berrylac dries to handle in 5 minutes.

Why not let this Berry Brothers' "know how" help you with your finishing problems? Write or wire.

BERRY BROTHERS
Paints · Varnishes · Enamels · Lacquers
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Quality Finishes Since 1858

rigid-back stencil knives and take care to cut through the film only, and not through the backing paper —although an occasional cut-through does no harm. The cut-out portions of the film are removed and this stencil (for color No. 1) is ready to be adhered to the prepared silk screen.

Another sheet of film is spread over the master sign and the next darker color stencil (perhaps orange or green) is cut in the same manner—and so on until a stencil has been cut for each color in the master sign. I might mention here, that when cutting the stencil for a light color we generally cut the stencil about 1/16 to ⅛-in. larger than the actual outline of the light color area on the master sign, in order to allow the lighter color to under-lap the following darker color (or we arrange for the darker color to overlap the lighter color, if you prefer). Of course, the stencil for the darker color, which adjoins the lighter color, must be cut exactly where the line of color separation occurs on the master sign. This overlapping of a darker color over a lighter color permits slight off-register printing without any harm to the completed work. It isn't noticeable on the finished job. In some instances, stencils for light colors are purposely arranged to partially or completely underlap certain areas of a darker color in order to produce a different shade or color (for instance, transparent blue over yellow to produce green, or transparent red over yellow to produce orange). This saves one stencil and one processing operation.

All stencil film that is cut away and removed (the scrap film) is placed in a container to which clear brushing lacquer is added as a solvent. The resulting mixture assumes an amber color, like our lacquer-base film, and is used for touching up and patching after the cut stencil is adhered to the silk screen. This mixture is of suitable viscosity for spotting centers and for general touching up and patching.

Adhering the Cut Stencil to Wood-Framed Screen

Adhering these cut-out lacquer-base stencils to their respective screens, is an easy simple operation. However, before this adhering job is started, arrangements must be planned to make certain that the different color stencils for a job will register properly. Stencil frames, one for each color, must be interchangeable. Usually each frame is fitted with a pair of identical half hinges. The mates to these half hinges are fastened to the work table. Mating hinges are joined by loose pins. The cut film stencil must be adhered or fastened to the underside of the silk screen, leaving the top side smooth and flat for contact with the process paint and moving squeegee blade.

The cut-out stencil is placed on the work table, on top of a "build-up" the thickness of which is approximately 3/16-in. With the stencil, film side up, in position, the framed screen is placed over the stencil so that the film side of the stencil contacts the side of the silk which is stapled to the frame; in other words, the side of the screen opposite to the operating side. Holding the stencil firmly in position under the screen, a small rag saturated with lacquer thinner is passed over the silk with fairly light strokes, covering the entire area over the stencil. Immediately thereafter, a clean dry rag is passed over the screen to absorb the excess thinner, leaving only a sufficient quantity to cause the

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Many firms are surprised to learn that the CLINCO line offers such a wide and varied choice of finishes; and that there is a CLINCO material for every product coating need, regardless of surface. CLINCO served many customers in prewar days because of its capacity and knowledge of coating requirements. Now, fortified by war formulation and production experience, CLINCO offers a still greater service. May we tell you about it?

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• Clear and Pigmented Metal Lacquers
• Pigment and Oil Stains

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1210 ELSTON AVENUE
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stencil to adhere or "cement" itself to the silk, and to become firmly attached to the silk when dry. We allow about 15 minutes for the treated film and silk to dry. When the stencil is firmly adhered to the screen, its paper backing can be peeled off and it is then ready to be blocked in.

Where, Why and How We Use Blocking Paper

For reasons of economy we do not make each film stencil large enough to cover all of the master sign. We make it of a suitable size to include all areas to be processed. The remainder of the open silk screen area is blocked in (covered) with a tough semi-transparent paper made especially for this purpose. With the screan leaning slightly back from a vertical position, the blocking paper is cut to the required size and shape to block in certain areas. A light coat of brushing lacquer is spread over the cut-out blocking paper. Then the freshly lacquered side of the prepared paper is placed in position over the silk screen. It will extend from the outside edge of the frame, over the staples that hold the silk in place, to a point where it overlaps the outer edges of the cut film stencil by at least ½-in. The coated paper is pressed out smooth, starting from the middle and working toward the outer edges, so that no wrinkles will remain. It is allowed to dry for about 15 minutes.

We can spot the centers of letters quickly and easily by hand, using small brushes to apply our prepared amber-colored touch-up lacquer. The screen stencil is given a thorough and close inspection for open spots, skips, and any other defects. If any such places are found they are fixed with touch-up lacquer. When these touched up places are dry the No.1 screen is ready for production.

Prepare All Needed Stencils Before Starting New Job

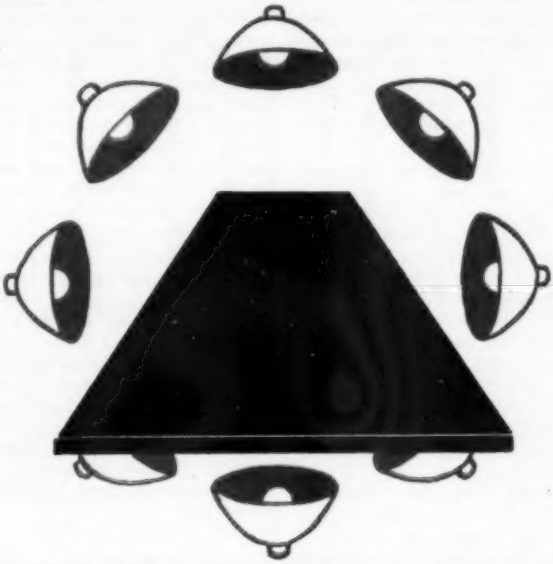
It is always best to assemble all screen stencils necessary to complete a job. This applies especially to a long run, say one that calls for several thousand signs, as it is possible to make a continuous operation of it. In other words as soon as the No.1 color is completed, enough drying time will have elapsed to begin printing the No.2 color, and so on.

The type of sign illustrated at the beginning of this article has from three to five colors, therefore it will require that same number of screen stencils—except in those cases where one color requirement may be met through the blending (by overlapping) of two other colors.

Completed screens are hinged to the work table by means of loose-pin hinges. Guides are placed in position on the table to assure correct registration. At the start of a new job one or two proofs are completely stenciled for a preliminary check-up of results.

How We Proceed on a Typical Stenciling Job

In our procedure the stencil for a typical sign 23x36-in. is adhered to the screen in such a way that the top edge of the sign is toward the hinged edge of the frame. A quantity of process color material is placed on the screen at the extreme left, in relation to the position of the operator. In processing, the operator first draws the squeegee from left to right. Upon completion of the stroke, he raises the frame, an offbearer removes the processed card, and the operator



HEAT RESISTANCE is just one* of SANTOCEL'S 7 superiorities as a flatting agent . . . .

Because Santocel, Monsanto's unique silica aerogel flatting agent, is *unaffected by heat*, the varnishes, lacquers and synthetics in which it is incorporated suffer no loss of flatness, no greying, when force dried or baked. Also, with Santocel in films, there is less tendency to solvent retention. Actually the reverse is true. And in subsequent use Santocel-flatted finishes do not cloud or haze readily under heat as when stearates or diatomaceous earths are the flatting mediums.

This important heat resistance factor, plus the six other superiorities listed here, explain why many leading makers and users of finishes today specify Santocel as the flatting agent.

Santocel: Reg. U. S. Pat. Off.

You are invited to send for full technical data on Santocel, or samples. Address: MONSANTO CHEMICAL COMPANY, Merrimac Division, Everett Station, Boston 49, Mass.

MONSANTO CHEMICALS

SERVING INDUSTRY . . . WHICH SERVES MANKIND

***Here Are The Other Six**

1. Clarity
2. Hard surface
3. Resistance to marring
4. Delustered appearance
5. Flexibility
6. Better adherence

puts in another card to be processed. He lowers the stencil screen and this time draws his squeegee back from right to left. He continues this sequence until all of the cards are processed in the first color.

The offbearer removes the used screen and squeegee, and delivers them to the wash room. While this is being done, a truck load of racks containing first-run cards is moved into position. The stencil operator cleans his table, positions the No.2 stencil for the second color run, and checks the position of guides to assure correct registration. Everything in order, he proceeds with the second run, and so on.

Advertising signs to be used outside, where they will be subjected to the elements, are given a top coat of outside varnish. We use a silk screen for this operation, too.

In the wash room, the squeegee is thoroughly washed in mineral spirits, wiped dry and returned to the operator. Each squeegee is numbered and assigned to a certain operator. Experienced squeegee men, being somewhat proud and jealous of their own work and tools, insist upon using certain tools that can be identified.

Removing Stencil Film From Used Screens

When a job of stenciling is completed, and if no repeat runs are expected, the screens are stripped of the adhered stencils so they can be used again on some other job.

The film stencil and paper blocking are prepared for removal from a used screen by placing the screen face up over a piece of heavy craft paper spread out on a flat top table, and thoroughly saturating the entire area with lacquer thinner. In five to ten minutes the craft paper may be pulled away from the screen, and with it comes most of the stencil film and paper blocking. The stripped screen is then washed thoroughly with lacquer thinner until all traces of stencil film are removed from its mesh. Then it is wiped dry, inspected for defects, and returned to the stencil room where it is available for use on another stencil job.

In conclusion, the essential requirements for satisfactory work in this line are: A well made frame, square at the corners and perfectly flat, and properly covered with silk; a straight-edged, sharp, rubber-blade, squeegee; a perfect stencil firmly adhered to the screen; careful blocking-in; an experienced squeegee man; and, above all else, cleanliness. This will insure fast, accurate, and trouble free processing.

V. R. Kelly Becomes Sales Engineer for Udylite

Mr. Vincent R. Kelly of Indianapolis (27 Westfield Blvd.) has been appointed by The Udylite Corp. of Detroit as Sales Engineer for the Indiana territory, under the supervision of the Cleveland Branch Office.

Vincent R. Kelly, Sales Engineer for Udylite in Indiana area.

Although a native of New York, Mr. Kelly has been in Indianapolis for the past five years handling heat treating and plating for Curtis-Wright. He is a member of the Society of Automotive Engineers and also of the American Society for Metals.

HILO

BACK AGAIN TO SERVE YOU

These six popular finishes are obtainable again without restriction. Many former customers for these product finishes are using them again because they are dependable and durable.

If they are new to you, try them for ease of application, attractive appearance and toughness of finish. Order 10 gallons on approval —you be the judge of their suitability for your product.

★VITRA CARLITE—the quick bake synthetic enamel.

★FRANZITE — an air dry or quick low bake synthetic enamel.

★RIP-PLS — the superior black wrinkle finishes.

★No. 916 BLACK CRYSTAL — the real sparkle finish.

★THE HILO Synthetic Sheet Metal Finishes for roller coat application.

★READY MIXED ALUMINUM dip and spray, air dry and bake.

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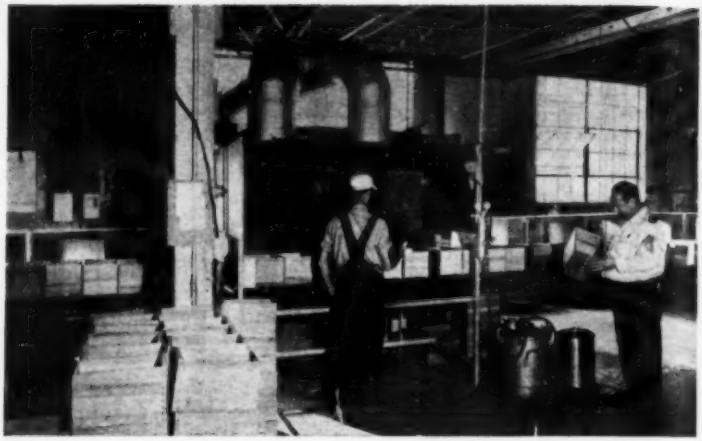


Conveyorized drawer coater spray booth. Photo, courtesy of Palmer-Bee Co.

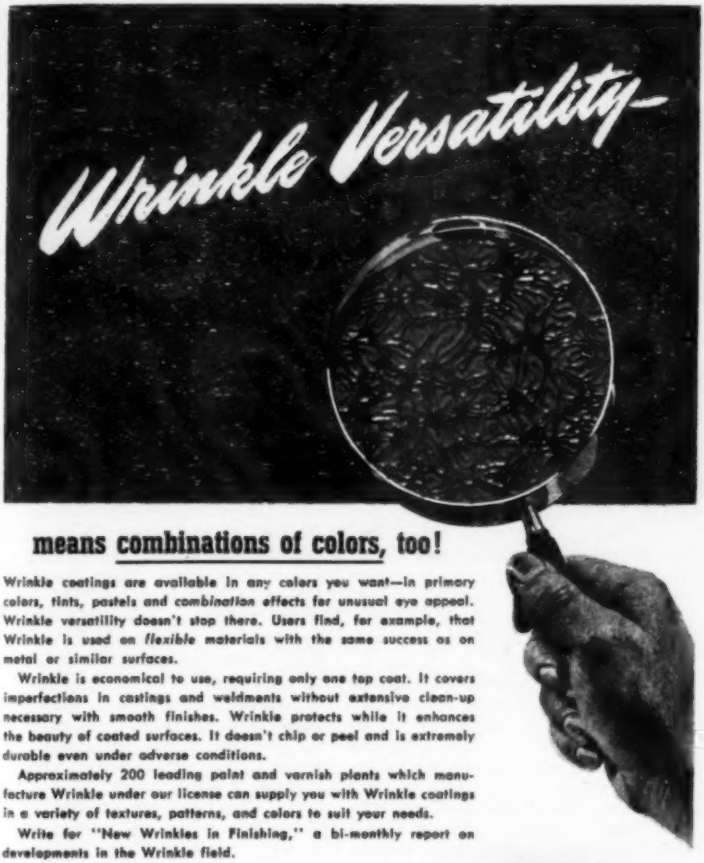
Finishing Furniture Drawers Along the Conveyor Line

FINISHING certain interior parts of furniture, such as the insides of posts in case goods, drawers, etc., has always presented a problem to manufacturers of furniture. Another problem is how to obtain a satisfactory interior finish without going into too much expense. These problems can be especially perplexing in finishing departments that are completely conveyorized. The places where this work is done and the methods used can go a long way toward lowering the labor costs in connection with conveyorized finishing.

The proper place in which to stain the insides of posts on bedroom or dining room furniture is in the cabinet assembly room, just after the cases leave the case or cabinet clamp. The drawers haven't been fitted into the cases yet. This will eliminate the labor of removing and then replacing the drawers after the cases are fitted.

BY H. W. CHESTER

Furniture finishers generally agree that the best place at which to stain drawer edges (the top edges which show) is just before the cases are loaded onto the conveyor. Then they can be done much better, and a cleaner neater job will be obtained. It is not easy to do this work while they are moving along on the conveyor. All that is necessary is to partially



means combinations of colors, too!

Wrinkle coatings are available in any colors you want—in primary colors, tints, pastels and *combination effects* for unusual eye appeal. Wrinkle versatility doesn't stop there. Users find, for example, that Wrinkle is used on *flexible* materials with the same success as on metal or similar surfaces.

Wrinkle is economical to use, requiring only one top coat. It covers imperfections in castings and weldments without extensive clean-up necessary with smooth finishes. Wrinkle protects while it enhances the beauty of coated surfaces. It doesn't chip or peel and is extremely durable even under adverse conditions.

Approximately 200 leading paint and varnish plants which manufacture Wrinkle under our license can supply you with Wrinkle coatings in a variety of textures, patterns, and colors to suit your needs.

Write for "New Wrinkles in Finishing," a bi-monthly report on developments in the Wrinkle field.

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Offices and Research Laboratories
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Wrinkle

THE "STANDARD ANSWER" TO VARIED FINISHING NEEDS

pull out the drawers and then use a 2-in. brush to stain the edges. Of course, this operation can be done after the cases are loaded onto the conveyor, but it is harder to do a neat job on the moving conveyor, due to its swaying. This same procedure is followed in filling, in spraying a coat of lacquer sealer, and the final top coat. Each of these operations is performed when the exterior finish is applied to the cases. The finish on top of drawer edges should be as good as the finish on the outside of the piece of furniture.

Best Places on Conveyor Line For Coating Drawer Interiors

On a conveyorized finishing setup there are two places where the interiors of drawers may be satisfactorily coated. Both of these places have certain advantages and disadvantages. The first place, and I think the best one for this work, is between the staining and filling stations (that is, if lacquer sealer coating is used on the interiors). After the washcoat is sprayed over the entire piece of furniture the drawers are removed and their interiors are sprayed with drawer coater. This will allow the drawer coater time to dry before the drawers (moving along on a separate flat bed conveyor) reach the washcoat sanding station where they can be sanded at the same time the washcoat is sanded. The drawers are then inserted in their proper places in the furniture.

The advantage of coating and sanding the interiors of drawers at this time is that any filler which may get into the drawers during the filling operation will easily wipe off without leaving stain spots. However, when spraying and handling the drawers, care must be taken to prevent any drawer coater from getting on the outside of the drawer fronts; this would cause light spots to remain after the subsequent filling operation.

Another satisfactory place in which to pull out and coat the interiors of drawers is after the cases have come from the filler oven, and just before they enter the sealer spray booth. One advantage in spraying the drawer interiors at this particular place is that (if a lacquer type coater is used) if any overspray from the interior coating gets on the fronts, it won't show in the subsequent coats of lacquer sealer.

Details of Procedure in Coating Interiors of Drawers

Wherever the operation is performed the best method is to remove the drawers and set them on a bench that has a wire mesh top, this bench being right alongside the moving conveyor. The drawers can be stacked in the order in which they come from the cases. First, the outside ends of the whole stack of drawers are sprayed. Then the interiors are sprayed one at a time, and they are put back in their proper place in the case.

Some concerns have a gently inclined gravity roller-type conveyor beside the main furniture conveyor. This roller conveyor passes through a spray booth. The drawers are taken out of the cases, put on the roller conveyor, sprayed as they pass through the booth, then removed from the roller-type conveyor and put back into their proper places in the cases.

If a 2-coat job is desired for the drawer interiors, then both of the places just mentioned for drawer coating can be used.

As to the type of drawer coater to use, it is my experience that the most satisfactory drawer finish is one or two coats of high-solids

Nu-Spede Finishes Step Up The Production of Mobile Equipment

Lowe Brothers Nu-Spede is a durable and attractive finish which helps step up the production of trailers, trucks, busses, street cars, tractors and other transport equipment.

Exceptionally weather-resistant, as proved by tests under burning Florida sun, Nu-Spede flows out evenly and smoothly to an attractive high gloss. It air-dries, dustfree, in 15 minutes—hard overnight.

Furthermore, Nu-Spede can be baked in 1 hour at 140° (a temperature which won't hurt wood structural members) or in shorter time, at a higher temperature, where all-metal construction is used.

Spray-applied as a finish coat over aluminum, steel or wood, Nu-Spede can be applied *after only 5 minutes of air-drying*, over Nu-Spede Primer, thereby eliminating time-wasting between coat baking.

From every standpoint, Lowe Brothers Nu-Spede is a remarkable finish for exterior surfaces which require an attactive and durable high quality finish, in less production time. For information about its application to your product or problems, write

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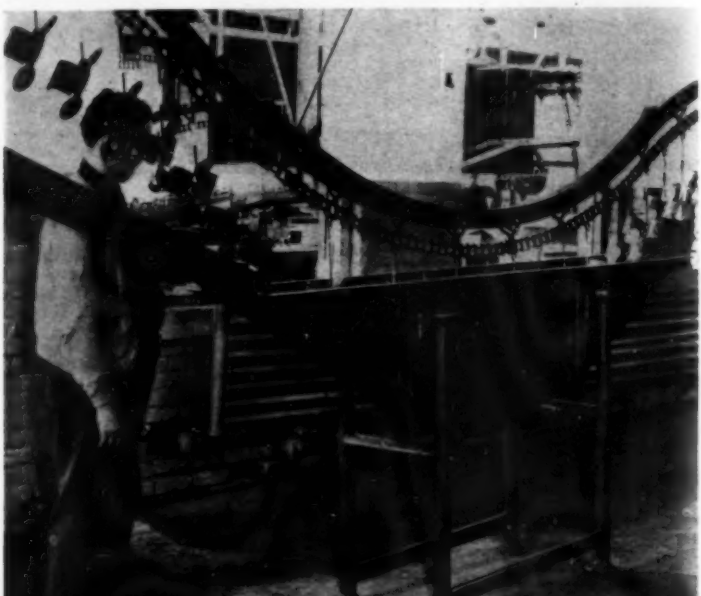
lacquer sealer, which may be used clear or tinted to any desired color. When only one coat of sealer is used, this is generally followed by a light sanding and a coat of good wax. The wax is usually applied just before the cases are crated or boxed for shipment. All excess wax should be wiped off with a soft cloth.

Where two coats of lacquer sealer, or one coat of lacquer sealer and a final coat of flat lacquer are used, it is necessary to sand lightly between these coats. On some of the cheaper grades of furniture, a satisfactory interior finish can be obtained by using a coat of good oil-type drawer coater. This can be followed by a light sanding, after the coater is dry. All sandpaper dust can be removed by using a tack rag.

Chinese Dynasty Colors, inspired by the sumptuous imperial robes from the Forbidden City, now displayed at the Metropolitan Museum of Art, are highlighted in the advance 1946 fall colors, which the Textile Color Card Association has issued to its members.



A downward bend in the monorail conveyor line and a custom built tank with drainboard provide a typical conveyorized automatic dip-coating setup.

Maple Furniture Finish

IN REDDISH AND HONEY TONES

BY WALTER C. ANDERSON

ROCK MAPLE is one of the easiest of hardwoods to finish. When rock maple was plentiful those pieces that contained dark sections and mineral streaks were not used. However now that we have a shortage of good furniture lumber, every piece is used.

When solid maple is used for furniture the lumber must be kiln dried to the point where the moisture content is only 5% to 7%. If wood containing too much moisture is made into furniture, trouble will begin when that furniture is placed in a warm room. The wood starts to dry from the end wood toward the center. The exposed ends dry faster and an internal strain is set up as the moisture evaporates. The center of each top or side or other part of furniture dries more slowly. As the strain increases the ends begin to split and the split may extend anywhere from several inches to the entire length of the piece.

Schedules for Producing Reddish and Honey Tones

To produce maple colors in the new reddish, honey or straw (heirloom) tones, a non-grain-raising stain should be sprayed over the entire piece. Allow the stained surfaces to air dry for two hours or more. Then spray on a coat of glazing sealer. Let the sealer coat dry for at least an hour. Sand the exposed surfaces smooth. Brush or spray a coat of blending stain. Wipe the surfaces clean, or leave some places darker if highlighting is desired, and then brush out to the desired color. Let the job dry overnight. Spray on a coat of sealer and, when it is dry, sand the surface lightly with very fine sandpaper. Follow with two coats of rubbed-effect lacquer—or omit the sealer and spray two coats of the same lacquer. This depends on the quality of the furniture and the finish desired.

Another system is to color tint a long-oil varnish which has been reduced with naphtha. Spray this on the bare wood and wipe the surface clean. Follow immediately with a blending stain reduced with naphtha; fog a coat all over the piece. Let dry over night; highlight with steelwool if desired, and proceed with a coat of sealer and two coats of lacquer, or one coat of varnish over the sealer.

Wiping Stain; Blending; Lacquer Sealer; Shading Stain

When rock maple is well matched for color and the wood is uniform in texture, a wiping stain can be sprayed over the bare wood, then wiped and blended with a brush All end wood should be wetted with oleum spirits before the wiping stain is applied, to prevent the stain from biting in and staining it too dark. Let the stained surface dry over night. Follow

with a coat of sealer; sand lightly with fine sandpaper; use lacquer shading stain where needed; spray on two coats of lacquer or one coat of varnish. Varnish is preferred with this system. Where a conveyor setup is used, all finishing materials must be adjusted according to the predetermined drying schedules.

A pigmented toner can be used as the base coat on the bare wood. This is used to uniform the color when light-colored pieces adjoin dark colored pieces in the same article. Allow at least one hour for air drying. Spray on a coat of glazing sealer; allow it one hour to dry; sand the surface smooth with fine sandpaper. Then brush or spray on a coat of blending stain and wipe to the desired shade. This will not be as transparent as stain, because we are using a thin "paint" as the base coat to cover up and make the piece as uniform as possible.

Bleached or Blond Maple Finishes

For a blond maple finish the wood is bleached and, after 15 hours of drying time, the surfaces are sanded smooth. Spray a coat of glazing sealer; sand with fine sandpaper; brush or spray a coat of blending stain of the desired color; wipe clean; apply a coat of sealer; sand lightly and follow with two coats of water-white lacquer.

Rubbed-effect lacquer is generally used for the final coats. The furniture tops are machine rubbed. Fronts and sides are steelwooled. Then the entire piece is waxed.

Rock maple is peculiar in that it expands and contracts with seasonable changes in the weather. The right type of lacquer must be used. Many manufacturers of maple furniture use varnish as the final coat. They have less trouble with splitting and peeling of the finish.

Editor's Note: The foregoing article is published in response to a reader who wrote us as follows: "I am interested in information on how to finish hard rock maple in maple and blond colors".

The postwar demand for pianos will be 60% higher than the 1941 output of 160,000 units, WPB estimated to an industry advisory board. Pipe, reed and electrical organ demand is estimated at double the 1941 production of 7500.

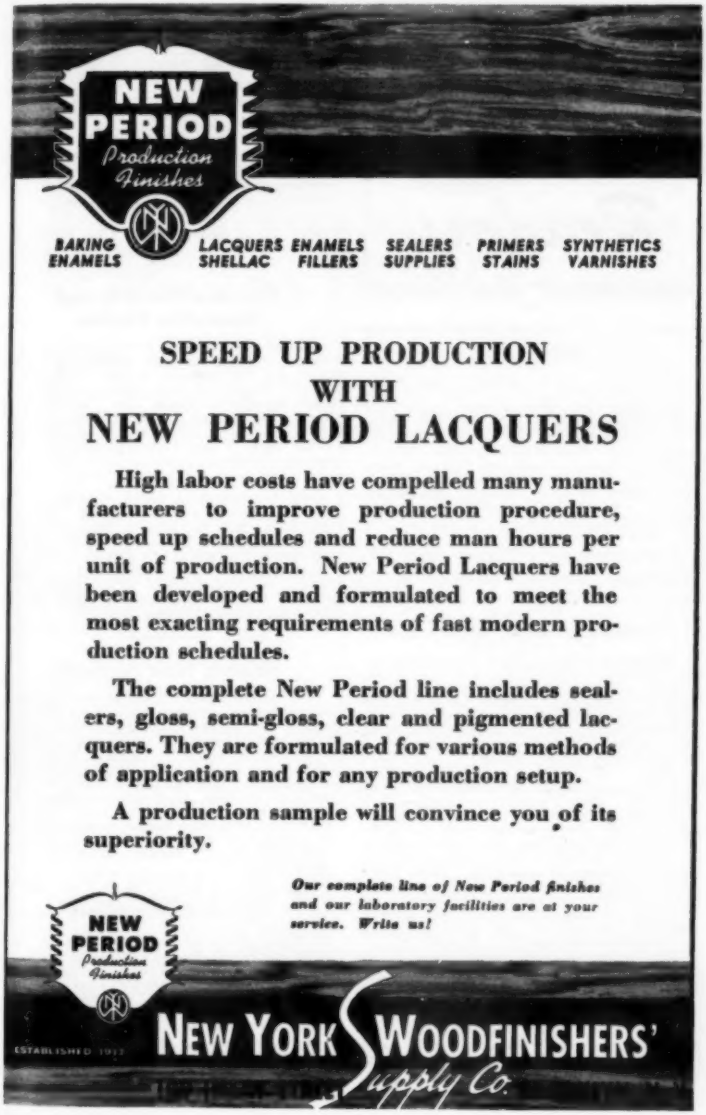
Truscon Appoints Phil Fogarty as New York Representative

Coming to Truscon Laboratories, Inc., an affiliate of Devoe & Raynolds Company, Inc., with a background of 20 years' experience in the building and allied industries, Phil Fogarty will make his office at 787 First Avenue, New York, N. Y.

Phil Fogarty now represents Truscon Labs. in New York

Mr. Fogarty was personally engaged in the tile contracting business for many years prior to 1937, when he joined a New York distributing organization which sold protective coatings for concrete, steel and general industrial buildings.

Truscon Laboratories, Inc., part of Devoe's Industrial Division, manufactures anticorrosives, waterproofings, and heavy maintenance finishes, as well as interior maintenance finishes for industrial and institutional use, concrete hardeners, and floor treatments.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NEW PERIOD LACQUERS
High labor costs have compelled many manufacturers to improve production procedure, speed up schedules and reduce man hours per unit of production. New Period Lacquers have been developed and formulated to meet the most exacting requirements of fast modern production schedules.
The complete New Period line includes sealers, gloss, semi-gloss, clear and pigmented lacquers. They are formulated for various methods of application and for any production setup.
A production sample will convince you of its superiority.
Our complete line of New Period finishes and our laboratory facilities are at your service. Write us!
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NEW YORK WOODFINISHERS' Supply Co.

Letters from Readers

Striping Tool

One of our good customers has written to us inquiring where they can buy a striping tool. We do not have any information about this in our files, but felt certain that you would be able to help us. We would greatly appreciate it, therefore, if you would write direct to the company, advising them the names of two or three manufacturers who could supply a striping tool.—E. V. Co

They might try Beugler Mfg. Co., 4313 W. 2nd St., Los Angeles 4, Calif.—ED.

Painting Venetian Blind Slats

On page 104 of Feb. 1946 issue of INDUSTRIAL FINISHING, we notice an inquiry regarding painting aluminum slats for Venetian blinds. We believe that such an operation could be done satisfactorily on a Richards-Wilcox continuous power conveyor, through a spray booth or dip tank.

We would also appreciate receiving the name of the inquirer regarding conveyor installations on page 100 (of Feb. 1946 issue). For your information we are sending you a Richards-Wilcox Zig-Zag conveyor catalog . . . . . a phenomenal development in the power conveyor industry. You will note that we are able to suspend on 6-in. spacing and make horizontal and vertical curves within a 2-ft. radius and can accomplish the turning of the work very readily.

We have recently made numerous installations for the baby carriage and furniture trade . . . . Throughout New England we, as distributors, have put in numerous installations, most of them being used for paint finishing through a spray booth or dip tank and then through infra-red or convection oven drying.

If you have inquiries in the New England territory we shall appreciate your referring them to us, as we have engineers who are capable of assisting manufacturers in conveyorizing their production and finishing lines.—ROBERT ABEL, INC.

Tumbling Barrels

I would be very much obliged if you will give me the name of any concern you know who manufactures tumbling equipment.—T. P. Co.

Try D. J. Murry Mfg. Co., Wausau, Wisc.—ED.

Names of Novelty and Decorative Finishes

Would you mind jotting down the correct names of new airpainting finishes, as the general terms are known to the trade? For instance, is a certain finish "crackle" or "crackled"? Are "hammered metal effects and pebbled grain" correctly spelled? Just write off a number of the more familiar ones, please . . . .—C. S.

We believe that most if not all of these (except certain trade names) are included in Dr. S. P. Wilson's article entitled "Trick Finishes", which appeared in July 1945 issue of INDUSTRIAL FINISHING Magazine. Tear sheets of the article are being sent to you in case you haven't a copy of the magazine at hand.—ED.

Striping Tools Available

We are again manufacturing the same line of striping tools and fixtures which we made during pre-war. We have one standard tool, the Gettner Universal Striper with Universal Guide, and are also making special stripers for automobile wheels, bodies, bumper guards, and other automotive parts. We do not have any printed literature covering these tools, as most of these are special to order.—K. H. GETTNER SHOP, Detroit Mich.

Quick-Drying Fillers

There is today a definite need for more research in the labs for a good fast-drying filler. Filler seems to be one of the poor orphans that has always been neglected, while most of the time was spent on stains, top coats, sealers, etc.

As an example, I know of a large firm in Virginia that is completely conveyorized and very modern, but as yet they haven't found any filler that

SMOOTHIE SAYS:

S·I·P

WEAR MASTER FINISHES DO *TRIPLE* DUTY!!

Their excellent working qualities are a STIMULANT to lagging production schedules. They work the way foremen want them to work!

The richness and beauty of WEAR MASTER Finishes on your cabinet work and fine woods make them a CUSTOMER-GETTER!

Their long-wearing protective qualities make them a CUSTOMER - HOLDER. Buyers are impressed with their durability!

WEAR MASTER PIGMENT UNIFORMING STAINS

Mahogany, Walnut, Maple, Oak and other popular colors. These stains give attractive coloration and uniformity to woods that are deficient in these qualities.

WEAR MASTER LACQUER SEALER NO. 1999

Excellent sanding qualities. Forms a perfect bond for succeeding coats and contributes to a film of lasting beauty.

WEAR MASTER TOP COAT LACQUER NO. 2002

A high solids top coat lacquer with exceptional cold check resistance. Good build and flow make this lacquer outstanding for quality furniture finishing. Available in gloss or dull sheen.

TRIAL SAMPLES

Available on request. WEAR MASTER Stain in standard shades or in selected colors to your order. The properties of the Lacquer and Lacquer Sealer may be altered to meet specific requirements.

EVANSVILLE 4, IND.

will dry fast enough for their conveyor. Therefore the cases must be taken off and dried in a hot box then returned to the line. This operation could, of course, be eliminated if a good 30-minute filler could be used. I know, of course, that there are so-called fast synthetic fillers on the market—many of them—but from my own experience I think they can stand a lot of improvement before they will be safe and acceptable to most furniture manufacturers.—H. D.

Several advertisers in INDUSTRIAL FINISHING have developed and are now selling fast-drying fillers. We suggest that you look through some recent copies and write the manufacturers for information and samples.—ED.

Interested in Juvenile Furniture Letter in February

We would like to contact the writer of the article, "Juvenile Furniture in Demand", which appears on page 100 in February issue of INDUSTRIAL FINISHING. Mr. Norman Abramovice, writer of the article, indicates that a scarcity of quality infant and juvenile furniture exists on the West Coast.

We are manufacturers of the nationally advertised "Wear Ever Line", of baby carriages and high chairs, and are presently in position to partially alleviate this scarcity. We will appreciate your aid in forwarding this letter to the attention of Mr. Abramovice, notifying the writer if this has been accomplished.—W. Co.

Your letter has been forwarded to Mr. Abramovice. His advertisement appears on page 136 of that same issue of INDUSTRIAL FINISHING.—ED.

Furniture Finishing Article in Demand

We are interested in the article entitled "Finishing Furniture on a Conveyor Line", as published in the December 1945 issue of INDUSTRIAL FINISHING. Some of our customers have asked us to give them a French translation of this article and we believe you will have no objection to our doing so, provided we give credit to Mr. Walter C. Anderson and your magazine.

One of our customers is eager to secure a copy of your article on Tumble Finishing. If I remember correctly, it was published in the year 1943 in two separate issues of INDUSTRIAL FINISHING. We hope you will be able to let us have a copy of this article.

As I am traveling in the furniture and wood finishing business in the Province of Quebec, I find your magazine of great help and practical assistance in my work—and I have also recommended it to several of my customers.— E. B. (with Mfr. in Montreal).

Requests granted.—ED.

Testing Wearing Quality of a Finish

On page 52 of March 1946 issue of INDUSTRIAL FINISHING magazine there is a description of a Taber Abraser. Will you be good enough to inform us where this can be purchased?—L. & Co.

It's a product of Taber Instrument Corp., North Tonawanda, N. Y. See the company's advertisement on page 138 of that same issue.—ED.

Spray Booth Cleaning

On pages 130 and 132 of February issue, there is an article dealing with the cleaning of spray booths. Mention is made in the article of protective coatings used to prevent paint from adhering to spray booth walls. We would appreciate it if you would send us the names of companies providing such products.—M. S. & Co.

The author of that particular article is with Boothcote Division of Harris Soap Co., Buffalo, N. Y. Several concerns that advertise in this magazine can supply a satisfactory material for this purpose.—ED.

Decorative Finishes

We have read your article in your February issue, "Greater Eye Appeal Through Decorative Finishing", by A. P. Schulze, and are greatly interested in 1) Mir-A-Tex, 2) Poly-Veil and 3) Multiform, as illustrated therein. If you will supply us with the names and addresses of the manufacturers of these finishes it will be greatly appreciated.—A. Wood Products Co. (Kitchen Cabinets).

The finishes named in your letter are products of Berry Brothers whose advertisement appears regularly in this magazine.—ED.

Eye-Appeal Finishes

The article "Greater Eye Appeal Through Decorative Finishing", in the February issue of INDUSTRIAL FINISHING, was of great interest to us. In the closing paragraph of this article, mention was made of several compan-

Do you want your name or trademark

HERE ?

THESE ARE AUTHORIZED *MANUFACTURERS OF CHADELOID STAINS:*

Adams & Elting Co.
Advance Paint Company
American Paint Works
Atlantic Lacquer Manufacturing Co.
Atlas Powder Co.
Ault & Wiborg, Div. of Interchemical Corp.
Bigelow Varnish Company
Billings-Chapin Company
T. L. Blood & Company
Boston Varnish Company
Andrew Brown Co., Inc.
A. C Buschman & Co.
Campbell Paint & Varnish Co.
Carosol Chemical Co.
Carpenter-Morton Co.
Chicago Bronze & Color Works, Div. of Allied Finishing Specialties Co.
Cincinnati Varnish Co., Inc.
Clover Leaf Paint & Varnish Company
Cudner & O'Connor Co.
The H. B. Davis Co.
V. J. Dolan & Co.
Flood & Conklin
Forest City Paint & Varnish Co.
The Foy Paint Company
W. P. Fuller & Company
The Glidden Company
Grand Rapids Varnish Corp.
Grand Rapids Wood Finishing Co.
C W. Haynes Lab., Inc.
Heath & Milligan Mfg. Co.
Heath & Milligan Mfg. Co. of California
A. C. Horn Co., Inc.
India Paint & Lacquer Co.
Indianapolis Paint & Color Co.
Jamestown Finishing Products, Inc.
R. F. Johnston Paint Co.
C. E. Krieger Co.
Lawrence-McFadden Co.
Lenoir Wood Finishing Co.
Lindeman Wood-Finish Company
Maas & Waldstein Co.
Murphy Finishes Corp.
Murphy Paint Co., Ltd.
Newark Varnish Works
New England Coating Works, Inc.
New York Woodfinishers' Supply Co., Inc.
Nubian Paint & Varnish Company
Palmer-Price Company
Penfound Varnish Co., Ltd.
Perfection Paint & Color Company
Robertson Company
Rockford Varnish Company
Roxalin Flexible Finishes, Inc.
Scriver & Quinn, Inc.
Schaefer Varnish Co.
The E. J. Shannon Co.
Southern Varnish Co.
The Gilbert Spruance Co.
R. H. Thorpe Paint Co.
Tomlinson Paint & Varnish Company
Trojan Lacquer Co.
Twin City Varnish Co.
U. S. Lacquer & Chemical Company
L. R. Van Allen Company
Wabash Products Company
The A. Wilhelm Co.
John H. Witte & Sons
Wolverine Finishing Materials Co.
Woodfinishing Products Company
Zapon Division, Atlas Powder Co.

CHADELOID CORPORATION

308 W. FIRST ST. • DAYTON 2, OHIO

Patentees and Licensors

U. S. PATENTS — 1,877,748 — 1,898,247 — 1,930,768 — 1,977,345 — 2,000,120 — 2,000,121
2,044,770 — 2,093,424 — 2,105,984 — 2,161,503
CANADIAN PATENTS — 330,344 — 343,162 — 343,163

ies who offer color styling to industry. Would you give us the names of a few of these companies?—I.C.Co. (Caskets).

Most of the large manufacturers of finishing materials that advertise in INDUSTRIAL FINISHING will be glad to supply you with information on color styling your product—or anything else that is to be painted. The list is too long to give here—and we might unintentionly omit some important ones.—ED.

"Ambroid" Found

On page 96 of your March issue I notice an inquiry for "Ambroid" cement. This cement is made by the Ambroid Co., Inc., of Brooklyn, N. Y. [The Thomas Register of American Manufacturers gives the company's address as 305 Franklin st., Boston, Mass.—Ed.]

The same article refers to Glyptal cement and, as you mention, this is made by General Electric.

I would appreciate your forwarding this letter to A. Products Co., as I would like to contact them regarding their problems.—N.P.O.

Peel-Off Coatings

Concerning the section, "Letters From Readers", page 98 in INDUSTRIAL FINISHING, February 1946, I wish to inquire about the writer of the letter on "Peel-Off Coatings". We have certain materials which I believe will be satisfactory for this purpose and I should like to inform the writer of same.—Maas & Waldstein.

Information supplied.—ED.

"Synthetics in Industrial Finishing"

I am a regular reader of INDUSTRIAL FINISHING. Often I have wondered if reprints of various articles were available. I am particularly interested in obtaining a reprint of the article, "Synthetics in Industrial Finishing," by Mr. Gilbert C. Close, in the February 1946 issue.—H.R.O.

Your February issue of INDUSTRIAL FINISHING contained a very fine article on page 26, "Synthetics in Industrial Finishing". I would be very grateful to you if you could forward to me a copy of this article.—G.S.M.

Reprints of articles in INDUSTRIAL FINISHING are only made when some firm or individual promptly orders perhaps 1,000 or more. Labor, paper and storage space are too scarce to make reprints of articles and store them against possible future requests for a few copies. We are sending you a set of pages torn from a mutilated copy of a February issue.—ED.

Silk Screen Painting

I have a question regarding painting in my business with which, I trust, your research division may be able to help me. I am interested in silk screen painting wood and metal toys. Just what materials are necessary, where they can be obtained and how it is done?—G.P.Co.

We are sending you tear sheets of some articles published in back issues of INDUSTRIAL FINISHING, and are referring you to manufacturers of the supplies and materials required.—ED.

Micalith-G

I have noticed in Sept. 1945, issue of INDUSTRIAL FINISHING a reference to "Micalith-G", a new metal primer. The name and address of the manufacturer is not given and, as I am eager to obtain literature and technical details relating to this material, I would be grateful if you would pass this request on to them.—I.L., Victoria, Australia.

This material, we understand, is a product of The Glidden Co., Cleveland 2, Ohio.—ED.

Rust Remover, "Vincul"

Would you please send us the name of the supplier of the rust remover which was mentioned on page 74, of February 1946 issue of INDUSTRIAL FINISHING?—Protected Steel Products.

Would you please forward the company name and address of the manufacture of "Vincul" rust remover?—E. Lighting Products Corp.

Author of the article states that "Vincul" is a product of Protective Coatings Corp., 10391 N. Lawn, Detroit 27, Mich.—ED.

Waxing Hickory Handles

We are waxing certain types of hickory handles by tumbling, and presume that you manufacture special types of wax for application to wood handles by the tumbling method. Accordingly, we shall be glad to have a small sample each of any waxes you

THE IMPATIENT PUBLIC will not bother to wait for *your* product when a "reasonable facsimile" is available. Make *sure* of your markets by speeding up deliveries. You can save days of production time—and eliminate the pile-up in your finishing room—by using lacquer.

Lacquer saves time . . . saves money . . . saves baking and bother . . . and gives products a beautiful, durable coat that patches easily when repairs are necessary. Ask any lacquer supplier.

CSC makes no lacquers or thinners but supplies solvents and plasticizers to manufacturers of protective coatings.

CSC

COMMERCIAL SOLVENTS *Corporation*

17 East 42nd Street, New York 17, N. Y.

could recommend, together with your price on 100-lbs., or larger lots.—M.H.M.

Advertisers in this magazine can supply you with suitable wax for your work. The list is too large to be published here, but we are naming some of them in our letter to you.—ED.

Paint-Circulating Systems

In the February 1946 issue of INDUSTRIAL FINISHING there is an article by Peter P. Wood on paint-circulating systems. We are interested in a paint-circulating system and are wondering if you could tell us who manufactures the equipment referred to by Mr. Wood. Any information you can give us will be appreciated.—Y.C. Co.

The leading spray equipment manufacturers who advertise in this magazine can plan, design, layout and install paint-circulating systems.—ED.

Crystalline Snow Effect

We are making an igloo-shaped Christmas tree stand of cast iron. We desire to give this stand an imitation crystalline snow effect, either by a spraying or dipping process. Can you tell us what kind of paint to use and how to use same to give the stand the desired effect?—R.W. Co.

J. B. Carse Becomes I.S.M. for S. C. Johnson & Son, Inc.

S. C. Johnson & Son, Inc., Racine, Wisc., announces the appointment of James B. Carse as Industrial Sales Promotion Manager. Carse, known as a public speaker and writer in the field of retail selling, display and retail promotions, previously was with the Kawneer Company, Niles, Mich., as Advertising and Sales Promotion Manager. He spent 11 years with the electric appliance division, Westinghouse Electric Corp. in advertising and sales promotion.

Mr. Albert C. Wendling Joins Colonial Lacquer & Chem. Co.

The Colonial Lacquer & Chemical Co., Inc., announces that Mr. Albert C. Wendling has joined its research staff. Mr. Wendling is well known in New England and until recently was Industrial Sales Manager of the Boston Varnish Co. He will devote his time to the development of new products and to research work. Mr. Wendling has had many years experience in special formulations and in practical finishing work.

Wyandotte Chemicals Holds Research Seminar

The 61 technically trained staff members of the Wyandotte Chemicals Research Department recently held a 3-session seminar at the Detroit Book-Cadillac Hotel in Detroit. One session was devoted to scientific activities within the department and one to corporation and management topics.

Technical papers presented by eight staff members of the department treated with problems prevalent in the several industries served by Wyandotte Chemicals with their various compounds and organic and inorganic chemicals.

G. E. Parker, Jr., Joins Sales Staff of Yarnall

The Yarnall Paint Co. announces the appointment of Mr. George E. Parker, Jr. to its sales staff. Mr Parker is a graduate of Virginia Military Institute and was commissioned in the Marine Corps in 1943. He served in the Pacific Theatre for 20 months and participated in one major engagement—Leyte, Philippine Islands. He served with the Field Artillery as a forward observer, reconnaisance officer and battery commander and received orders to inactivate duty April 8, 1946 as a 1st Lieutenant. Mr. Parker will make his headquarters in Richmond, Virginia.

Lumber-Producing Forests

Our forest lands are producing nowhere near their maximum yield. Generally, it is estimated that the production of useful products could be doubled by applying forest practices. We have some 461 million acres of commercial forest lands; one-fourth is in a low state of productivity. Of the remainder, at least another fourth can be classed as only partly stocked. It is common knowledge that a high percentage of timber operations make little or no provision for a second crop.

Little argument should be needed today to convince every American that well-managed forests are essential to National prosperity. The vital role played by lumber and other forest products in our war economy indicated that wood was just as essential to victory as steel, aluminum and rubber. It is just as essential to prosperity. We owe it to the American people to make certain that our forests are restored to full productivity as soon as possible.—H. L. Shirley.

EXPERIENCED MEN TO SOLVE YOUR

Finishing Problems!

Introducing—

ELLIS H. THOMPSON, PHILADELPHIA, PA.

Yarnall's Philadelphia and Southeastern Pennsylvania Territory is covered by Ellis Thompson who has been in the Protective Coatings industry for 29 years. He joined the Yarnall organization in 1941, is married to Hazel Terosa and has two children, Mildred Virginia Thompson and C. Edgar Thompson. C. Edgar is an optician.

Mr. Thompson's long experience in the industry makes him invaluable to both Yarnall and their customers.

His hobbies are numismatics and fishing.

Men like Ellis H. Thompson, with this full measure of knowledge and experience—backed by the Yarnall Organization, with the Creative Ability and Manufacturing Efficiency which has earned for them a Sixty-one year old reputation as "a good house with which to do business," stand ever ready to serve you.

For Durability, Beauty and Protection — for Faster and More Economical Application, Use

"PRODUCTION PROVEN" YARNALL INDUSTRIAL FINISHES

Listing a few of these finishes

Yarbrite Toy Enamel
Yarlite Baking Enamel
Yarlast Exterior Enamels
Flock Adhesive Undercote
Wood and Metal Primers
Wrinklecast
Hammercast
Embossing Finishes
Luminous Finishes
Dipping & Spraying Aluminum

YARNALL
THE SHIELD OF PROTECTION

YARNALL PAINT COMPANY

Industrial Division PHILADELPHIA PENNSYLVANIA

Questions and Answers

Pickling Steel

We would like to receive data on pickling or etching of steel. The types of acids used for such purposes and the time required to give satisfactory surfaces before coating are the general data that we need. Any information you can furnish will certainly be appreciated.—O. & R. Co.

In regard to pickling of steel, the three acids most commonly used are sulphuric acid, hydrochloric acid (called muriatic acid commercially) and phosphoric acid.

Sulphuric acid is generally used for pickling in concentrations from 7% to 10% by volume and the solution is heated. The temperature range may be from 120° to 180° F. To prevent attack upon the steel, inhibitors are used, and frequently surface active materials are used to prevent fuming. Sulphuric acid solutions used cold are not as effective as hydrochloric acid solutions.

In regard to hydrochloric acid pickling, this solution is generally used for room temperature pickling. The concentration of acid used depends upon the degree of difficulty experienced in removing the scale or rust. Normally, equal volumes of hydrochloric acid and water are used, although the full strength acid can be used; but it is unpleasant because of the fumes evolved.

There are inhibitors available for addition to hydrochloric acid to prevent attack upon the base steel and, usually, these inhibitors are different from those used in sulphuric acid pickling Hot hydrochloric acid solutions are very good for rapid pickling, but due to the evolution of offensive hydrochloric acid fumes, they are not normally used without good exhaust ventilation.

In regard to phosphoric acid pickling, the chemical activity of phosphoric acid solutions is about the same order of magnitude as sulphuric acid solutions. Commercial 75% orthophosphoric acid is used, and concentrations ranging from 10 to 20% by volume of this mixture are used both cold and heated. If not rinsed thoroughly from the surface, phosphoric acid tends to leave an iron phosphate film that inhibits corrosion slightly and improves the adhesion of organic finishes, whereas hydrochloric acid solutions may leave residues that will induce corrosion. Phosphoric acid solutions, together with surface active materials, are sold for combined cleaning and pickling of steel.—*Dr. Walter R. Meyer, Technical Director for the Enthone, Inc.*

To Color Stripe Billiard Cloth

I have a problem which I hope you can answer. Attached is a piece of cloth to which I wish to apply some type of paint. This cloth is "billiard cloth," the same type of cloth that is used on gam-

Just the material *for your postwar finish!*

Cannot be marred or scratched — just thumb nail it; try to scratch or mar it.

MAR PROOF LACQUER

Yes, here's just the material for your postwar product finish . . . a tough piece of goods that will stand up under the most severe conditions. Protects as no ordinary lacquer will do! It produces a splendid transparent finish of full depth on maple, walnut, gum, mahogany and other cabinet woods. Available in either the clear Gloss Rubbing or the Satin Finish. Mar Proof Lacquer Sealer is recommended with it for the first coater.

Test Mar Proof Lacquer on your own product—that's all we ask. Working samples free upon request.

THE SCHAEFER VARNISH COMPANY
LOUISVILLE, KENTUCKY

ing tables in Nevada. I want to apply a paint or dye that will penetrate the material. I have in mind using a stencil. The stencil will have thin lines, over which we would like to spray some type of paint in colors such as red and blue.

The paint cannot be brittle and it must lay smooth with the cloth, like a dye. After the lines are applied, the other operation is to stencil letters into the cloth, using a very fine touch-up spray gun.

If you have any information on this type of finishing, I certainly would appreciate an early reply. I understand that the cloth used on the gaming tables is applied by the silk-screen process, and requires several operations. This would be impractical in my particular case.

P.S. The markings on the sample cloth I am sending you are made with China marking pencils. This is a sample of the finish I would like to have but something more permanent.—S.C.

Editor's Notes: Samples of the cloth were sent to a few paint chemists, and here is what one of them reports:

Regarding this proposition, my tests are completed and herein is the final outcome—very much as I had anticipated, although I did not expect it to be quite as unfavorable.

My vehicle is entirely satisfactory—just as elastic as the cloth; it is penetrative but with a minimum of "spreading" within the fabric. Color pigments hold up well in suspension in this vehicle, and drying is okay. The two color mixtures were made at spraying body in order to determine the effects when applied.

A small drop of each color onto cotton duck shows strong coloring, even on the reverse side. But equal drops onto the sample of green billard cloth are barely discernible, as also are the two stripes applied with a toothpick.

I fully realized when I started that both blue and red are very poor color selections, because they lack contrast to the green cloth. For spraying, particularly with a fine touch-up gun, the material must be thin for adequate atomization, therefore the color is dissipated within the fabric and obscured very much like dye coloring would be.

To my notion, the only feasible way to produce solid color on soft absorbent fabric is by the screen process. Process colors—and I have personally made tons of them—are soft paste and strongly colored, not penetrative; they dry promptly, and although the applied color lays on the surface it really is not a "raised" coating and should not be objectionable.

However, I hold a ¼-pint can of the red and blue mixtures to send to S.F. for his trial. You might also enclose the carbon copy of this letter to him, and the green and duck fabrics. Should he want to continue his proposed spray application anyway, and want to procure material like these samples—of the same or different colors—he can then tell me by direct letter and I shall refer him to a manufacturer in the East Bay district to whom I shall give formulas and directions.—L.A.

From S. C. who asked the question:

I wish to thank you for the efforts you have made in trying to help me with the paint problems about which I wrote you in regard to applying a paint material over "billard cloth". Through your

PRECISION FORMULATED · PRODUCTION TESTED

Quality Coating Finishes

for METAL · WOOD · COMPOSITION · PLASTICS · PAPER · ETC.

NEW!

SAVE LABOR AND MATERIALS

with

TEXON ONE COAT LACQUER for WOOD and METAL

Coatings with a film thickness three times heavier than usually obtained from ordinary lacquers can be achieved with one spray application. Will not penetrate porous surfaces and can be used for wood finishes without a sealer.

Such properties in one single coat have been previously obtained only with the so called "Hot Spray Process," or with great sacrifice in drying speed.

TEXON ONE COAT LACQUER does not require any special equipment for application and it can be sprayed as it comes in the can. Dries in 10 minutes, ready to handle. Produces a lustrous finish of fine texture with a marproof and elastic film of long wearing qualities.

Ideal for use where previously two or more coats have been applied. Has good adhesion on metal, wood, composition board, paper, etc.

Can be supplied in all colors—except clear.

Write for YOUR sample NOW.

Note: *When writing advise us what article it to be finished. Quality and type of finish required. Method of application. If possible —send sample of unfinished piece and sample of finish desired.*

TEXON INDUSTRIAL COATINGS

TEXON INDUSTRIAL CORP.

Manufacturers of

LACQUERS · ENAMELS · SYNTHETICS · THINNERS

WRINKLES · AUTOMOTIVE COATINGS

PAINTS · VARNISHES

General Offices: 10-05 50th Avenue · Long Island City 1, N. Y.

efforts, Mr. L. A. sent me two samples of his materials. Unfortunately, however, the tests were not successful. Nevertheless, I do appreciate his efforts, and in the event that I run across a suitable material, it would be a pleasure to send in the information to your very fine publication.—S.C.

Editor's Note: We also sent a copy of S. C's. question and a sample of his marked cloth to Aridye Corp., (Colors for Textiles), Fair Lawn, N. J. This company's reply, along with a striped sample that really looks satisfactory to the Editor, is as follows:

Enclosed is the fabric which you sent to us recently, with a copy of a letter. We screen printed this fabric with Aridye pigment colors, using the screen printing process, as we did not have a stencil. The blue is obtained with Aridye Blue FC2G plus 10% Aridye White F21 cut 1/5 with Aridye Clear 6214-6. The red was produced with Aridye Red FDR plus 10% Aridye White F21 cut 1/5 with the same clear. The clear was prepared by mixing 7½ parts with Concentrated Clear 6214, 24½ parts Varsol and 68 parts of water. If you want to forward this to Mr. S. C. and ask him to get in touch with us directly, we shall be glad to give him any further information we can. —*Winn W. Chase, Service Manager, Aridye Corp.*

Green Cross for Safety Campaign

Americans will be called upon to rally behind the Green Cross for Safety this May, when the National Safety Council launches a nationwide fund-raising campaign aimed at winning general public support of its far-reaching accident prevention work.

The Green Cross will serve as the emblem and banner of safety—safety in the home, on the farm, in the factory, and on the teeming streets and highways of America.

The drive, marking the first time in its 33-years history that the National Safety Council has gone directly to the public for funds, comes at a time when the public is growing increasingly aware of the accident problem because of the appalling rise in traffic deaths since the end of the war.

Metz Now Techincal Service Manager for Zapon

Donald A. Metz, of New York, has been appointed Manager of Technical Service for the Zapon Division of Atlas Powder Co., according to an announcement by H. H. Bucy, Assistant General Manager. The Zapon Division manufactures industrial finishes at plants in Stamford, Conn., and North Chicago, Ill. Mr. Metz will be located at Stamford. He is organizing a service which will enable the company to further the technical and sales interests of its customers in the industrial finishes field.

Donald A. Metz is now manager of Technical Service for Zapon Div'n of Atlas Powder Co.

Mr. Metz is the son of Herman A. Metz, former Comptroller of New York City and well-known in the color and chemical industries.

A graduate of Sheffield Scientific School of Yale in 1937, Mr. Metz was recently released from the army with the rank of Lt. Col. He was in charge of organizing and operating the Paint and Chemical Laboratory at Holabird Depot, Baltimore, Md., and later at Aberdeen Proving Ground. As Chief of the Laboratory, he directed research and development of the first lusterless finishes used by the army for automotive equipment, and later on all ordnance material.

Mr. Metz worked in cooperation with the industrial finishes industry throughout the war to help provide a continuous flow of raw materials to meet specifications despite various material shortages.

BEHLEN'S BRONZE *Powders*

Are made of the finest metals • Are finely ground
Retain their original brightness • Hold their lustre

Behlen's have supplied the finest Bronze Powders since 1888. Their unusual qualities are at once apparent to the users, because their smoothness, uniformity and durability are the results of the combination of fine materials and manufacturing skill. The following are the finest colors to be offered in a long time, that can meet Behlen's high standard of quality. Aluminum C P Lac—No. U1 Rich Pale Gold Lining—No. U2 Rich Gold Lining —No. U3 Pale Gold Lining—No. U4 Rich Gold Brilliant (Regular)—No. U5 Pale Gold Lac 1 (Regular)—No. U6 Copper Deep. For the finest quick-drying mixing vehicle use Behlen's Fresco Bronzing Liquid. Send for color card.

Finishing Headquarters Since 1888

H. BEHLEN & BRO., Inc., 10 Christopher St., New York 14, N. Y.

Materials Supplies Equipment

Long Lasting Fungicide by Mansanto

Monsanto Chemical Co., St. Louis 4, Mo., announces that its scientists have re-formulated a 66-year-old German chemical to produce the most versatile, efficient and long-lasting textile preservative known to man.

When properly formulated and applied at textile mills to fabrics, the chemical affords durable protection against air-borne superficial and rotter-type fungi, as well as against soil inhabiting organisms, thus greatly increasing the serviceability of domestic, industrial, agricultural and military fabrics.

As with the insecticide DDT, the parent compound lay dormant for well over a half-century before its potentialities as a fungicide were even considered. It was the South Pacific War, with its accompanying need to protect military fabrics against jungle rot, that prompted the investigation.

The preservative treatment adds long life to such items as fish nets and lines, cordage, tents, tarpaulins, awnings, upholstery materials, shoe liners, fire and garden hose, bags, carrying cases and sporting equipment.

Water sprays, weather exposure, sunlight and laundering appear to have little or no effect on its permanence as a textile preservative, Monsanto reported, adding that it is free from objectionable odor and compatible with water repellent and fire retardant finishes for textiles.

The product has been found relatively free from skin irritation or toxicity to humans.

Textiles treated with the preservative are colored a light greenish-yellow shade which is light stable and a usable pigment for items such as awnings, canopies and upholstery materials. Where darker shades are desired the color of the preservative can be readily masked.

"Iridite Bright" for Zinc

"Iridite Bright", a chemical treatment that produces a mirror-bright, transparent, chromate film on zinc or cadmium plated parts, has been added to the line of Iridite finishes manufactured and marketed by Rheem Research Products, Inc., Baltimore, Md.

Unlike an ordinary bright dip, Iridite Bright forms an entirely new, corrosion-resistant finish on the surface of the metal. This coating greatly reduces finger-marking and will not fade or tarnish.

No electric current is used by the process. Parts being treated are immersed in the Iridite Bright solution for only five seconds, followed by the usual rinsing and drying. A low-concentration caustic rinse is sometimes used, following the rinse after Iridite Bright, to yield an even more brilliant finish.

Laboratory prepared test panels of Iridite Bright over zinc

Take a look at this Data Book

Showing how Industrial Designers are using FLOCK as a Functional and/or Decorative Surface Coating on ALL materials

FUNCTIONAL USES

Used in the auto, airplane, radio, electrical, phonograph, ceramics, furniture and many other industries for surfacing all sorts of materials to provide

SOUND DEADENING • TEMPERATURE INSULATION • INTEGRAL GASKETS • SHOCK ABSORBING SURFACE • NON-MAR SURFACE • NON-GLARE SURFACE.

DECORATIVE USES

Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced—

SUEDE LEATHER • FURNITURE UPHOLSTERY • INTERIOR AND DRAPERY FABRICS • VELVET • VELOUR • MOHAIR.

Rayco Flock consists of uniformly cut particles of cotton, rayon, hair, in all colors, which can be permanently adhered to practically any surface or selected portion of it. It produces synthetic surfaces like suede leather, velvet, velour, mohair, felt, carpet, etc., for the Functional and Decorative purposes listed at the left. It will repay you to study the limitless possibilities described in our free book "Surface Coating with Flock." Request your copy now.

SEND FOR THIS FREE DATA BOOK

RAYON PROCESSING CO. of R.I. INC.

58 TREMONT ST., CENTRAL FALLS, RHODE ISLAND

Developers and Manufacturers of Printing and Coating Flock

plate showed no signs of white corrosion after 100 hours exposure to salt spray under U. S. Bureau of Standards Specifications. Untreated zinc panels, of course, showed white corrosion in less than 24 hours.

Dry Chemical Fire Extinguisher

In this new fire extinguisher, All-Out Dry Chemical is ejected under pressure, in a flat stream, that separates the flame from the burning material. It instantly forms a dense, fire-smothering cloud over a flaming area, up to a distance of 18-ft. It creates an insulating barrier between the operator and the flame, providing protection from radiant heat. On hot metal surfaces the dry chemical forms an insulating film, helping to guard against reflash.

The chemical forms no toxic gases; is a non-conductor of electricity; non-abrasive; harmless to finished surfaces; easily removed with a brush; will not deteriorate or cake. The extinguisher is easily refilled, requiring no special tools or equipment.

Light enough to carry easily; squeeze-grip nozzle for positive control.

The All-Out Dry Chemical Extinguisher meets the requirements of the Associated Factory Mutual Labratories and Underwriters Laboratories. A product of Pressurelube, Inc., All-Out Fire Extinguisher Division, 609 W. 134th St., New York 31, N. Y.

"Minit Kote" Cleans, Neutralizes, Phosphatizes

"Minit Kote" is a new original development that makes it possible to effectively prepare metal surfaces for painting in one operation. This product is a phosphoric-acid emulsion having high detergency properties.

1) Minit Kote may be used in a one-stage washer at a 27% volume concentration and at a temperature of 160° to 180° F. It will effectively remove the usual soil from iron and steel parts. It will also remove light rust or tarnish, and will leave the parts with a light uniform phosphate coating. This phosphate coating provides a base for excellent adhesion of paint, enamel or other organic finishes.

2) Minit Kote may be used as a rinse after the usual alkali cleaning operation. In this case the manufacturer recommends a 1% by volume concentration. Use of this material as a rinse assures the complete removal of alkali from the parts, and imparts sufficient phosphate coating to provide an efficient paint base.

3) Minit Kote may be used instead of alkali in a steam gun or

CHECK

It's important to check the products that you take in.

And ***more important*** to check the products that you ***send out!***

The **STILLE-YOUNG** job is not completed until we produce for you the finish that you require.

And we watch it—not only at the beginning—but year after year.

This type of service pays—and is one of the valid reasons for the universal acceptance of **STILLE-YOUNG** Lacquers, Fillers, Stains, Enamels, Paints as leading items in the finishing industry.

We can give you a lift.

S-Y

STILLE-YOUNG

Manufacturers of

LACQUERS • FILLERS • STAINS • ENAMELS • PAINTS

CHICAGO 14

steam cleaning operation. Its use in this case eliminates the need of a rinse and gives considerable better paint adhesion.

4) While acidic in nature, this preparation does not require special equipment and may be used safely in your present washer. It does not precipitate hard water salts and may be used with any type of water. A product of Klem Chemical Works, 14401 Lanson, Dearborn, Mich.

Cleaner for Finished Surfaces, Wax Sealer and Polish

The Plasticlear Co., 814 Elm St., Manchester, N. H., announces new, easy-to-use materials for cleaning up soiled finished and plated surfaces; and products for putting on a wax sealer coat that easily wipes to a high luster polish.

According to the company's circular: "To clean and polish, moisten a clean cloth with a generous amount of Plasticlear Cleaner-Polish. Apply to surface by brisk rubbing and let dry; then use another clean dry flannel cloth and rub briskly for a few minutes. Result: A clear clean shiny polished surface."

For automobiles the company suggests its Super Hard Seal-in-Wax; for furniture, Plasticlear Liquid Wax. Each wax is put on liberally and rubbed while wet.

Stabilized, Ready-Mixed Chrome Paint

A near approach to natural silver chrome finish in a ready-mixed paint is announced by Alumatone Corp., 1523 Grande Vista, Los Angeles 23, Calif. The patented stablizer used in its manufacture gives package stability and prevents the paint from darkening in the can even after opening. The paint holds full brilliance and color at all times. It has less tendency to tarnish after application.

Chromatone is packaged ready for instant use. No separate mixing paste or powder is necessary. For indoor or outdoor application on a wide variety of materials, metal, wood, glass and other hard surfaces, the new paint formula has proven high protective qualities. Being both a rust and heat-resistant coating, Chromatone may be used successfully on heaters, radiators, tanks, plumbing, interior and exterior fixtures—for all-'round domestic, automotive and industrial applications.

Excellent drying and lasting qualities, and the development of a higher percentage of leafing properties which gives greater hide and greater luster are additional features demonstrated by extensive use tests. The paint sets in 20 minutes, dries in 2 to 4 hours. It is equally suited to brush or spray gun work and dries without leaving brush marks or laps. The resultant surface is satin smooth, with high gloss.

Flexible Abrasive Tools For Intricate Smoothing

During the war, it became evident that hand finishing operations on many small, intricate or irregularly shaped parts, were too slow, inaccurate and cumbersome. To correct this an inventor conceived the idea of abrasive micropoints and other small circular and cylindrical abrading tools made from the better grades of flexible abrasive fabrics, commonly found on belt and disc sanding machines.

His idea was adopted by a

QUALATONE

RUBBED EFFECT LACQUERS

No Rubbing Necessary

QUALALACQ RUBBED EFFECT 755

—produces the desirable rubbed finish without the labor of rubbing down. Qualalacq Rubbed Effect 755 has all the basic qualities of hardness, texture, flexibility, durability and will do the job in one operation. Qualalacq Thinner 631 is recommended as the most suitable thinner for this lacquer.

BRUSH OR SPRAY

QUALALACQ DULL 288

—will save your energy. It has been specifically formulated to meet the requirements of economical production. Quality and superior working properties are the prime assets of this lacquer. To eliminate the labor of rubbing down a gloss finish, a final coat of Qualalacq Dull 288 will give that hand-rubbed effect. Use Qualalacq Thinner 520, for the best results.

QUALALACQ NO-SHEEN 799

—is a dead flat finish, developed and formulated to produce an economical, production line finish, possessing no gloss. Qualalacq No-Sheen 799 dries hard, permanent and gives the fine appearance necessary for salesroom appeal. For the best results use Qualalacq Thinner 631.

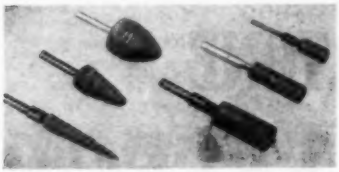
Manufactured by the Makers of

QUALASOLE

AMERICA'S FINEST PADDING LACQUER

QUALATONE PRODUCTS INCORPORATED

21 GAY STREET **NEW YORK 14, NEW YORK**



These tools fit onto a power mandrel.

group of production men who formed the Flex-Abrasive Co. (100 N. La Salle St., Chicago 2, Ill.) back in 1941 and went into production with a line of micro-points, flexa-cones and wheels made up in various shapes, grits and sizes. Along with the new tools, company engineers also designed tapered thread mandrels to fit any of the commonly used small rotary power units. The abrading units are screwed onto the mandrels by hand, and then held in place by rotary action. These tools quickly replaced many hand sanding, grinding and polishing operations in the country's leading war production establishments.

Now with relaxed production restrictions, company officials see widespread uses for their products both in industrial establishments and also in home work shops.

Metal Parts Cleaning Machine

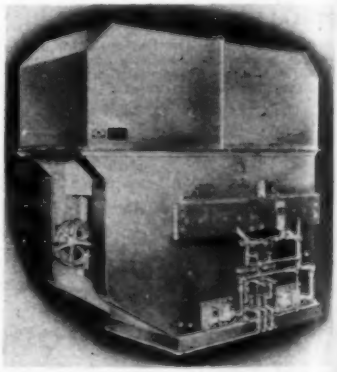
Small baskets of parts can be cleaned in a new 2-dip immersion vapor degreaser recently added to Detrex Corporation's line of standard metal cleaning equipment. (Detrex Corp. is located in Detroit, Mich.) Designated as 500-C-1, the conveyorized machine permits a choice of any one of several cleaning cycles.

The type and degree of surface contamination is the deciding factor in the selection of a suitable method of cleaning. First choice is an immersion-vapor cycle. Work being cleaned is dipped in hot solvent in the first chamber and then is moved through vapor in the second.

Second selection is a vapor-immersion-vapor cycle. Here the solvent level is held low in the first chamber, allowing the accumulation of oils and grease as in a one-dip concentrator. The conveyor moves through hot solvent in the second chamber and then through solvent vapors in the final phase.

The boil-rinse-vapor cycle cleans the work in solvent at a boiling temperature, at a rinse temperature and in the vapor. Some contaminants can be removed in vapor alone. These various phases can be recombined to form new cycles for special degreasing jobs.

The 500-C-1 is fabricated from 10-gauge steel plate, reinforced with structural steel of all-welded construction. A water jacket condenser, tested for a working pressure of 40-lbs. per sq.in., completely circles the machine. Beneath the condenser is a clean sol-



It cleans metal parts for painting.

United's
Furniture Lacquers

MODERN furniture production schedules require a high speed lacquer that flows freely and dries rapidly to a hard, tough and perfect finish. It must have good build and be absolutely uniform in quality and performance.

United's Furniture Lacquers in gloss, satin or dull have been specially formulated to meet the most exacting requirements of the furniture industry and they have proven their merit in production use.

It is suggested that you write for a generous size working sample which will convince you of United's superior quality.

LACQUERS—THINNERS
METALLIZED FINISHES
SYNTHETICS AND
SPECIAL COATINGS
FOR ALL SURFACES

United Lacquer Mfg. Corp.

General Offices, Laboratory, Factory: LINDEN, N. J.

NEW ENGLAND MFG. DIVISION, EVERETT, MASS.

vent collecting trough which carries the reclaimed solvent through a water separator to either the storage tank or the second chamber.

Work to be cleaned is loaded at one end of the degreaser, carried through the cleaning cycle and returned through the upper hood to the same end of the machine for unloading. The conveyor system is complete with the necessary sprockets, shafts, take-up device, speed reducer and varispeed drive. All of the sprockets below the vapor line are zinc plated, as are all the crossrods and all of the conveyor chain.

The complete line of 500-C-1 vapor degreasers, which have hourly work load capacities of 2000 to 4000-lbs., incorporate eight different sizes of baskets ranging in size from 8x18x6-in. to 18x36-x12-in. Up to 180 baskets of parts are cleaned each hour.

Reusable Hose Couplings Available

Announcement is made by Resistoflex Corp., Belleville, N. J., of a complete line of patented attachable-detachable reusable metal couplings, which now make it possible to hand-assemble flexible hose lines. These 2-piece safety-seal couplings were developed by Resistoflex, whose factory-assembled compar-lined hose assemblies are original equipment in air and oil lines.

Combined with any flexible hose —preferably with compar-lined gas-oil hose because it is impervious to gasoline, organic solvents and oil—these reusable couplings properly attached, can be trusted never to let go or vibrate loose. They are easily and quickly attached or detached and can be used over and over again, with end-wrench assembly done on the spot.

The coupling nut threads onto the hose, with coupling shell compressing the hose end into a safety-seal gasket. With keep true threads, the fitting has a long even grip on the hose, the double bell shape of nut allowing hose flex without cutting. The heavy body of the fitting prevents crushing or distorting of the line. Unusually large square wrench surfaces make assembly simple and quick.

Aluminum Finishes Again Available

The postwar Alumcote series of aluminum finishes, incorporating the latest war-improved technical advances, is now available for civilian production, according to an announcement by The Watson-Standard Co., Pittsburgh 12, Penn. Alumcote protective coatings are available in nine types, each of which has been designed to meet specific requirements as to use and method of application. They make possible smooth, brilliant and durable product finishes.

The lithographer, container manufacturer and metal fabricator will find the new aluminum finish for black plate to be of definite interest from the standpoint of tin conservation.

Manufacturers of reflectors, stoves and heaters will find the new heat-resistant Alumcote suitable for service at elevated temperatures. Manufacturers of toys, drums and pails will get smooth, tough, brilliant coatings formulated to withstand abrasion and severe handling. Paper converters will find Alumcote suitable for producing brilliantly embossed, decorative and protective food packaging products.

Fillers

Fillers that really fill easily, thoroughly, and lastingly

✔ *In any required time*

— Over night
— 4 hours
— 7 to 10 minutes

✔ *In any required type*

— Air dry
— Baked
— Standard
— Combination stain and filler

✔ *Do not swell, shrink, turn grey or bleed*

Exclusive Product of

GRAND RAPIDS VARNISH CORP.

GRAND RAPIDS, MICHIGAN

Makers of the Famous Guardsman Finish

Random Comment on the Industrial Scene

(Continued from page 10)

petent observers, this may prove to be "the greatest textile development since the power loom."

* * *

For World Trade—"If this country is to prosper," declares Thomas W. Lamont, chairman of J. P. Morgan and Co., Inc., "we must try to help raise in some measure the standard of living in other countries, and thereby bring about a wider market for our goods as well as those of friendly nations."

Lamont points out that we must find outlets abroad for excess production in many of our products; we must buy, as well as sell, goods and services abroad; and we must be ready to make foreign loans and investments.

* * *

Charting the Future—Harry W. Alexander, New York industrial consultant, presents a chart of future business highlights, which offers much food for serious contemplation. This calendar indicates that our inflation crisis will continue until this summer. By October, competitive selling will be under way, and a buyer's market will be in effect in January of 1947. Intensive selling will be observed throughout next year, with price declines beginning early in 1947. According to this study, a business recession may be expected by early 1949.

* * *

Small Plane Field—In the opinion of C. J. Reese, President of Continential Motors Corp., sales of personal planes may reach 40,000 units this year, representing a volume of nearly $100,000,000 for this branch of the aircraft industry.

Reese's estimate is based on an average price of around $2500 for the light planes. It is interesting to remember that only 24,000 light planes were registered in the United States in 1941.

* * *

Sales Decline—The gloomy outlook for 1949, indicated above, is confirmed by another source. Harry B. Marsh, director of market research for the Perfect Circle Co., issued a study of automobile sales some weeks ago which bears out the general outlines of the Alexander chart.

Automobile production in this country may be expected to reach a new high figure of 6,000,000 cars annually in 1947 and 1948, says Marsh, but output may drop to 1,500,000 cars by 1950. In other words, he believes that the market will be reaching the saturation point within four years.

It should be emphasized, though, that all spokesmen of the auto industry do not by any means agree with these forecasts. Critics point out that Marsh's figure for 1950 is much too low, because style obsolescence should prove a factor in increasing sales and output.

* * *

Service for Readers—Subscribers to *Industrial Finishing* may get admission tickets upon request to many leading radio broadcasts. When planning a trip to Manhattan, drop a line to: *Lawrence H. Singer, 130 West 86 Street, New York 24, N. Y.*

Among the cooperating sponsors are: Helbros Watch Co. ("Quick As A Flash"); Texas Co. ("Texaco Star Theatre"); and the Prudential Insurance Co. ("The Family Hour").

CLAREMONT flocks

RAYON COTTON WOOL

Available in various length fibres. ✓

Particles finely cut, uniform — fluffy yet filling. ✓

Brilliant colors pastel shades . . . also neutral tones. ✓

Industrial uses include soundproofing insulation surface coatings protective finishes, etc. ✓

Decorative Simulations: Suede, velvet embroideries leather and upholstery fabrics. Readily applicable to glass, wood, metal, paper cloth, etc. ✓

Details, samples and prices upon inquiry ✓

SLIP-PROOF ADHESION . . . and SMOOTH as a PUTTING GREEN !

Turntable tops flocked with Claremont Flock present a true flat surface to the mounted record . . . prevent slippage — promote true playoffs. Claremont flocks (cotton, wool or rayon) are applicable to metal, wood, cloth, paper. In various fibre lengths, the effects achieved simulate felt, suede, velvets, velours, etc. Ample samples and detailed information upon request. Inquiries invited.

CLAREMONT WASTE MANUFACTURING CO.
CLAREMONT, NEW HAMPSHIRE
The Country's Largest Manufacturers of Flock

Bonderite Sludge Filter

A CLARIFYING filter has been developed for the continuous removal of sludge from Bonderite tanks while the equipment is in operation. The sludge is accumulated in this filter and then ejected periodically in dry form of about Fleischman's yeast consistency.

One filter installation on a Bonderite tank of 1800 gallons, with a 600-gallon pump supplying the spray nozzles, was operated for three months without cleaning the tank or nozzles. As a matter of comparison, the filter was not used for four days. It was then necessary to clean the tank and nozzles in order to get proper Bonderizing results.

While the filter was in use, the accumulated sludge was ejected every two or three days, taking about 10 minutes to do this. Approximately a bushel of dry sludge was ejected each time.

This method of sludge collection and removal should be of interest to operators of Bonderite equipment. It eliminates the present methods of sludge removal and disposal, and the cleaning of spray risers and nozzles.

Very little Bonderite solution is lost while cleaning the filter. Much cleaner work is produced, as the solution tank is remarkably free from sludge in suspension. Carry-out on the work is practically nil, for paint adhesion. — H. R. MADSON.

The Mitchell-Bradford Laboratory at Bridgeport, Conn., has produced a new rust-inhibiting oil, "Witch Oil," which protects metal stampings after pressing and while in storage or transit, and acts as a bond for paint or enamel.

Colonial Lacquer & Chemical Co. Builds New Addition

The Colonial Lacquer & Chemical Co. Inc., of Ashland, Mass., announces that the new extension to its present plant will be completed and in operation on May 1, 1946. The new building will double the present capacity of the company's plant. Installations of new equipment include the latest type of tanks, flow meters, etc. The new plant extension will be used solely for the production of a new type short-bake synthetic.

Sarco Co. Opens Office in Washington, D. C.

Sarco Co., Inc., 475 Fifth Ave., New York 17, N.Y., makers of steam traps, temperature control, and heating specialties, announces the opening of its Washington office at 1129 Vermont Ave. N.W., Washington 5, D. C.

The office is in charge of Major H. F. Collins, formerly of U. S. Army Engineers. Mr. Collins represented the company in eastern Pennsylvania for a number of years and is thoroughly familiar with its business.

Surface Technology Forum

Mr. C. F. Silleck and Mr. S. Lauren of the C. J. Osborn Co., New York, addressed the February meeting of the Surface Technology Forum on the subject of "Wrinkle Finishes."

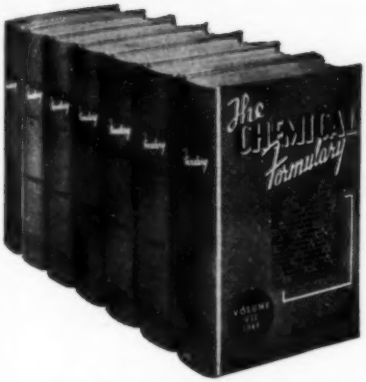
The patent literature and recently published information on all wrinkle finishes were thoroughly reviewed. The influence of enamel composition, processing and application upon texture control was discussed in detail. The size of wrinkle pattern varies inversely with the extent of pigment volume and total oil absorption. The concept of "film mobility" was introduced to describe the interrelated effect of pigment volume and oil absorption on the "mobility" not of the enamel, but of the deposited film.

Wrinkle patterns having highest relief appear most lustreless, regardless of actual surface gloss. Manganese drier promotes most pronounced wrinkling in alkyd resin vehicles.

The lecture was followed by a substantial discussion period.

The March meeting of the Forum was addressed by Mr. Gilbert T. Schmidling, Consultant. His subject, "Luminescent Coatings."

These Forum meetings are conducted under the Chairmanship of Dr. Myron A. Coler, Assistant Professor of Chemical Engineering, New York University (College of Engineering) University Heights, New York.



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Drugs	Bleaches	Oils & Fats	Fibres	Waterproofing
Farm & Garden	Ceramics	Liquors	Beverages	Metals
Specialties	Deodorants	Dyeing & Coloring	Flavors	Alloys
Resins	Disinfectants	Fluxes	Rustproofing	Glues
Cements & Concrete	Laundry	Explosives	Metal Treatments	Pastes
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INDUSTRIAL FINISHING Magazine

1142 North Meridian Street **Indianapolis 4, Ind.**

Booklets Catalogs Circulars

Motors and Generators

Elinco Catalog "FB" is a new two-color brochure offered free of charge by Electric Indicator Co., Stamford, Conn., manufacturers of precision fractional horse-power motors and generators.

Alrose Wetting Agent

Alrose Chemical Co., 180 Mill St., Cranston, R. I., has published for the trade, a 12-page technical bulletin on "Alrosol", an Alrose wetting agent and detergent which is of interest to metal cleaners and finishers. If interested, send for copy; it's free.

Sunlight Map of U. S.

Want to know what areas of the United States have the most and the least sunlight annually? Send for bulletin entitled, "Sunlight—An Influencing Factor in Human Preferences for Color", published by Eagle Printing Ink Co., 100 Sixth Ave., New York 13, N. Y.

Use of Testing Lab. Offered by Behr-Manning

In a new 8-page bulletin, Behr-Manning Corp., Troy, N. Y., illustrates some of the facilities it offers users of sandpaper and abrasives for making various tests to determine which products, equipment or methods are best suited to their production requirements.

This booklet announces the provision of branch located Methods and Equipment Demonstration Rooms for industrial customer use in pre-testing their grinding, sanding and finishing tool-ups on standard commercial equipment, without disturbing their plant production schedules. Shown in this booklet are random photographs of Behr-Manning demonstration rooms in the company's offices at St. Louis, Chicago, Boston, Cleveland, Detroit and Troy.

Announcement is likewise made of forthcoming openings in branches at Philadelphia, High Point, Los Angeles, New York and Cincinnati, with plans for installation in other of the branches well underway and awaiting only the availability of floor space and equipment.

Facilities for arranging immediate use of these centrally located laboratories by methods engineers, plant superintendents, industrial supply distributors and others are provided in the booklet.

Flow Meter Handbook

A complete yet concise treatment of fluid measurement, including related factors, equipment, equations and computations in terms of steam, water, oil and gas flow, is offered in a new volume, "The Flow Meter Engineering Handbook", compiled and edited by Louis Gess and R. D. Irwin, flow meter engineering department, Brown Instrument Co. division of Minneapolis-Honeywell Regulator Co., 4444 Wayne Ave., Philadelphia 44, Penna.

The new volume, replete with information for students as well as engineers, is the second edition published by the Brown Co. It is priced at $2.50 a copy.

Dust Control Bulletin Offered Free

The American Air Filter Co., Inc., First & Central Ave., Louisville 8, Ky., has brought out a new and greatly enlarged Bulletin No. 270-A which concerns its Roto-Clone dust control equipment.

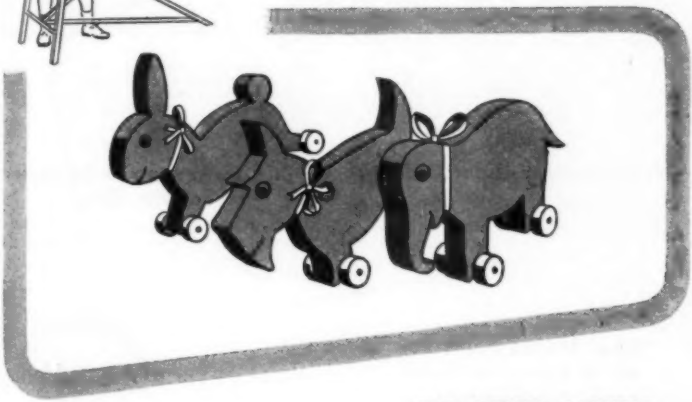
The attractive Roto-Clone dust control booklet (34 pages 8 1/2x11-in.) contains many installation photographs, tables, charts and a discussion of a simplified procedure for designing a Roto-Clone exhaust system. Also, included is an explanation of pressure relationships in an exhaust system and methods of measurement.

Booklet on Power Brushes

A 24-page booklet designed to serve as a virtual encyclopedia of power bruch usage in manufacturing operations has just been issued by the Technical Department of The Osborn Mfg. Co., 5401 Hamilton Ave., Cleveland 14, Ohio.

The contents of this new 8½x11-in.

Toys for Tots



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Cellusuede FLOCK

The "fur-like" surface produced by the soft pile of Cotton or Rayon Cellusuede Flock adds touch appeal to animal pull-toys and children's playthings. Through the use of this decorative and protective coating, you can increase the value of your products, yet cover them easily and inexpensively. Send us samples and we will finish them at no cost or obligation. And a good point to remember . . . Cellusuede Flock can be applied to wood, metal, plastic or paper surfaces.

Write for free booklet today!

CP Cellusuede Products, Inc.
ROCKFORD, ILLINOIS

generously illustrated publication includes a full-page treatise on factors that enter into the selection of brushes, taking into consideration methods that should be employed to gain the greatest use from each of the wide variety of power brushes manufactured by the company.

More than 30 illustrations graphically depict actual power brushing operations and some of the achievements possible with proper brushes and suggested techniques.

Another feature of the booklet is a series of tables which group various types of Osborn brushes and wheels, showing the brush number, approximate operating face width, wire diameter and brush trim length, and application notes referring to the use of individual models and sizes. There are eleven of these separate tables.

Free Booklet about Color

A new and interesting illustrated booklet about color measurement and specification is ready for free distribution by the General Printing Ink Co. (Div'n of Sun Chemical Corp.) 102 Sixth Ave., New York 13, N. Y. Send for a copy; it's free.

"What Makes Paint Dry" All in New Free Book

A colorful, attractively illustrated brochure of 24 pages 11 1/2x10-in., entitled, "A Film is Born", has been prepared for free distribution by Interchemical Corp., Finishes Division, Empire State Bldg., 350 Fifth Ave., New York 1, N. Y.

It is a remarkably attractive reprint of Paul O. Blackmore's 3-part article which was published in November 1944 and January and March 1945 issues of INDUSTRIAL FINISHING Magazine. Mr. Blackmore is Director of Products Engineering & Development for the Finishes Division of Interchemical Corp.

Everyone should have, read and keep for reference a copy of this excellent piece of authoritative information. Send for a copy today.

Dehn Becomes Sales Manager of Magnuson Products

Mr. George M. Dehn has been appointed General Sales Manager of the Magnuson Products Corp., Brooklyn, N. Y., manufacturer of the well known Permag Cleaning Compounds and other detergents. For the past 20 years, Mr. Dehn has represented a manufacturer of finishing materials in the middle east.

C. E. Spooner, Sales Manager of Packard Paint & Varnish

Charles E. Spooner has joined the Packard Paint & Varnish Co., Cambridge, Mass., as Sales Manager.

Mr. Spooner was previously connected with a manufacturer of finishing materials in Detroit, Mich., for 15 years in the capacity of Manager of Industrial and Aviation Sales. He is well known throughout the United States as an authority on aircraft finishes, and has many friends in New England, where he served the trade for 18 years.

Mr. Spooner brings to Packard Paint & Varnish Co. 26 years of wide experience to augment the sales staff of this rapidly expanding New England firm.

Peter to Represent Du Pont in Toledo, Ohio

R. C. Peter has been transferred as technical representative in automotive finishes, from the Wilmington, Del. home office of E. I. du Pont de Nemours & Co., to the Toledo, Ohio area. He will be connected with the Du Pont Automotive Finishes Office in the General Motors Bldg. at Detroit, but will reside in Toledo.

R. C. Peter, with Du Pont Co. as technical man on automotive finishes in the Toledo, Ohio, area.

Mr. Peter has been with the Du Pont Co. 20 years. Starting as a chemist in the Parlin, N. J., laboratory, he contributed to the early development of "Duco" nitrocellulose lacquer and "Dulux" synthetic resin enamel formulations. During the last seven of his 16 years in the laboratory, Mr. Peter was in charge of industrial lacquer sales service and development. At present he is a member of the field research section.

Mr. Peter was born in Louisville, Ky., and attended Centre College and Cornell University from which he was graduated in 1924 with a Bachelor's degree in chemistry.

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Editorial

More Standardization to Come in Industry

Now is the time for standardization. With everything costing more that enters into the cost of production and distribution, and with O. P. A. price ceilings on so many products, it appears that each manufacturer must concentrate on volume output of one or a few easy-to-make designs. Under present conditions, manufactured goods must move to consumers with a minimum of delay, service cost, and sales resistance.

Regardless of whether or not Government price controls are good or bad for those most affected by same, it is a fact that many lines of products are made in an excessive variety. This, in turn, has required more different shop setups and the maintenance of larger inventories of raw materials all along the line.

Some of the building material manufacturers have taken steps toward adopting improved standardization and they are going in for the elimination of many different sizes in several items. Certain window sizes, for example, that formerly ranged in steps of every 2-in. will now have a more limited range. They will be made in steps of 4-in. as, for example, 24x24, 28x24, 32x24, etc. In the 2-light standard windows for homes, this eliminates 97 window sizes—along with a corresponding number of sizes in window frames, trim, screens, storm windows, etc. Many other building items have been standardized too.

What is being done in the building industry, through standardization, may be accomplished in other industries through cooperation and coordination. Also, it seems that no more opportune time will ever present itself to industry than the present to accomplish these changes. Many factories still are in the process of reconversion, and the public has become accustomed to being told that certain articles are not available in any size or at any price.

In industry's long history, few of us can recall when inventories were ever as low as they are at the present time. The opportunity

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MAC'S FAMOUS FASHION BLEACH is now available for bleaching all kinds of wood including mahogany, the most difficult wood to bleach. It dries overnight to a desired bleached effect ready for sanding and for the regular finishing schedule. It can be applied by spray using a glass container. Sample will be furnished on request.

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is here for more useful standardization in your industry, whatever that industry may be. Why not investigate, and then work through your association for the betterment of your individual business and for the entire industry?

Check Your Factory for Obsolete Methods

★ One industrial engineer, highly regarded for his ability to show quick returns wherever he is called in to revitalize a plant, admits that his apparently spectacular success is based on a study of the calendar and history of the organization. When he finds that a process, for instance, is being performed exactly as was 10 or more years ago, it is given a careful investigation. In most cases it needs modernization, and this starts a train of improvements which, when they are completed and placed in operation, produce remarkable savings in costs and time.

That engineering consultant's plan is applicable in nearly every factory. Ancestor-worship has no place in a plant that must meet modern competition. If there have been no progressive changes within a plant over the period of a decade—even including the necessarily "frozen" war years—it is usually an indication of dry rot somewhere in the management Especially is this true if, when a lull in production occurs because of strikes, etc., no place for improvement becomes evident, even after careful inspection.

Unlike a precision chain which demands replacement rather than repair after the breakdown of a single link, a manufacturing plant may have any link replaced without impairing the efficiency or value of others in the processing line-up. The new "link" in the plant may, and frequently does, show up the inefficiency of others, and thus encourages further change. But each improved step in the production scheme offers a possible gain in time, and less cost or manpower, and thus it justifies the time spent in discovering and remedying the fault.

Even if all possible points of improvement cannot be corrected at once, this does not count against the value of taking a "process inventory". A selective revision of production practices is most often required to prevent an otherwise extensive disruption of output—and revenue.—E. STERRETT.

A Clean and Orderly Finishing Department

★ Cleanliness and orderliness are two words that are synonymous when used in connection with a modern efficient finishing department. We are all familiar with the saying, "Cleanliness is next to Godliness". This being the case, many of us foreman finishers have a long way to go.

We are all making plans for streamlined labor-saving finishing departments and vastly improved finishes for the immediate future. One of the things that we will have to do in order to achieve these aims is to eliminate dirt and disorder in the finishing department.

★ Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

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It is impossible to produce a good finish in a dirty and disorderly finishing department.

Most finishing foremen dream and think of keeping their departments clean and orderly, but all too often they just don't get around to putting their thoughts and dreams into action. This is especially true in these days of labor shortages, as it is almost impossible to obtain sufficient labor to get the necessary production through the departments.

The war is over and eventually we will be able to get all of the labor necessary—we hope. Actually it costs less to keep a clean and orderly department than to have a slovenly slipshod department. Expensive fires, serious accidents, much poor work and excessive refinishing are caused by uncleanliness and disorder in the finishing department.

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In many cases, much labor is lost as the result of things not being kept in order in the department. For instance suppose that a spray man on a conveyor line has trouble with his spray gun. He finds that the utility guns are all dirt and in a bad state of repair. Well, the conveyor has to be shut down while this one man is fixing his spray gun. Let us say it takes 15 minues to repair the gun, and that 40 men stand idle for this 15 minutes. This makes a total of 600 minutes, or 10 hours of lost time. If the average wage is 75 cents an hour, it costs his company $7.50 to repair this one gun, not counting the volume of production lost.

Suppose an employee stumbles over a bucket or empty container setting out in an aisle. He falls and is seriously injured. He is lost to production for a long time—sometimes permanently — and his company pays an expensive compensation bill. All of this is directly traceable to conditions of disorder in the finishing department.

All finishers realize that from the standpoint of economy and efficiency, there is everything in favor of cleanliness and orderliness, yet many times we just go along with the old inefficient and disorderly systems because of the purely human tendency to take a course of least resistance, avoid exerting the extra effort on something other than production, and to shun a change.—H. W. CHESTER.

Color-conditioning is concerned with results rather than with mere effects. Its purpose is to add to human efficiency, increase production, reduce accidents, and at the same time capitalize that fascination for color which is inherent to all of us.

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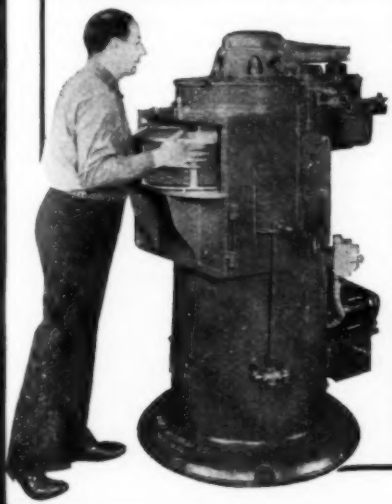

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Check Fire Prevention Before Hot Weather

★ The month of April always brings to mind the saying that "April showers bring May flowers". Now the number of days left before summer comes are few—during which to take the important step of checking up on your fire-prevention and fire-fighting equipment. The old excuse of "It's too hot to do that in June, July or August, and it's too cold to do it during the winter months", is a very weak alibi.

It's never too hot or too cold for anyone to receive checks in payment for goods or services. Manufacturers don't advise their customers to not pay their bills in June, July or August, or during the winter months; but many concerns do neglect to maintain their fire-prevention and fire-fighting apparatus.

I visited a large plant where I saw some very sloppy fire prevention work. I have seen quite a number of small plants in which great care was given to fire prevention, and plenty of fire-fighting equipment of new style was in evidence. Among other things, I have noticed a particular type of nozzle for creating a water fog—a high efficiency fire-extinguishing item which I believe is excellent. I have seen and admired the easy mobility of fire-fighting equipment in many plants.

The management of several small concerns that I have in mind includes conscientious men who value their finishing process; they strive to present fine quality products in a competitive market—and they will grow. After a forest fire, the remaining big trees are just ghosts, but new little ones sprout up. Let us concentrate a bit more on fire prevention, shop cleanliness, modern fire-fighting apparatus and well trained finishing department help. —E. C.

Wage Incentives Do Increase Output

★ As a means of expanding output, increasing worker income and lowering selling prices, the doctrine of incentive pay deserves far more attention than it has generally received heretofore.

Work incentives are by no means new. A nationally known company in Cleveland, for example, has operated a pay incentive program over the past decade. It is credited by company executives with having

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been instrumental in producing the following results:

1) No strife. Not a single productive man-hour was lost through discord or misunderstanding between workers and management.

2) Continuous employment. No person was laid off during the last two decades due to lack of work.

3) Steady income. No reduction in wage rates was made during that period.

4) More jobs. Number of people employed soared, having increased by more than four times.

5) Wider markets through lower costs. It has been possible to reduce the selling price of its products by more than 60% while all other manufacturing products have been increased by an average of 25%, resulting in wider distribution, both domestic and foreign.

6) More pay. Earnings per man have been more than quadrupled, an increase double that of industry in general.

7) Financial stability. Dividends to owners or shareholders of the company (practically all of whom are workers) have been continuous and increasing. The company has not missed a dividend since 1918.

Comparative figures draw a clearer picture of the company's success fostered by policies that create loyal, effective workmen and spur production efficiency. During the past 11 years the firm's sales have zoomed from $4¼ million to almost $35 million in 1942; its profits have increased to almost twice the previous figures; its incentive bonus payments have swelled from a relatively small per cent to nearly the equivalent of a year's wages.

Over a 10-year period the dollar production per worker jumped from $5,000 to over $28,000; it's four times that of competitive

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plants today. Meanwhile, the average worker's total income increased from less than $2,000 to more than $5,000. As annual wages mounted, selling prices decreased. In the past 30 years the company slashed the price of a typical machine from almost $1,500 to $200. This equipment once required 110 man-hours to produce; now it takes about 19. Average hourly pay has multiplied many times.

Here's another example: Since 1933 the concern has reduced the price of a typical product from 15.2 cents a pound to 5.5 cents. Twelve years ago it required 72 hours to make a ton of that product; today, it takes slightly more than two hours to produce the same amount.

The superior production efficiency that has come from operation of an intelligent incentive pay plan provides: Bigger pay envelopes for workers, larger profits for management, higher dividends for owner or shareholder, lower prices for consumers and, most important of all, assures continuously increased employment.

"Human incentive" the company's president declares, "is the heartbeat of free enterprise, the lifeblood of American industrial system, the key to all progress."

Give those engaged in production an adequate inducement to put their brains into its technique and their backs into its operation. That is the way to raise the standard of living for everyone.

William Hard once aptly summed up the proposition this way: "Incentive pay can lower costs and prices, and lift purchasing power. It can expand the market not only for the products of industry but for the products of agriculture. It leads to more output for all, more income by all."—A.T.R.

Organization of Details Makes Factory Click

In your business or your job, the degree to which you have perfected your organization—that determines the degree of success you will attain. Organization, or lack of it, separates the professional from the amateur.

Did you ever stop to think why the movies you see seem to run so smoothly; why everything is appropriately done; why there are no apparent errors? Or in the chain broadcasts you hear on the radio—the fitness, timing and perfection attained? The obvious answer is, combining performance with the infinite study, care of numberless details, and studied planning by persons who have been especially selected for the work according to their ability and talents. That is organization.

Red Tape Versus System

★ Often we hear men from a small plant say, with some degree of pride and satisfaction, "Our business is not cluttered up with red tape". Many of those who have had recent military experience can certainly appreciate and applaud such a condition—no red tape.

But there is an important and specific difference between red tape and an adequate system for keeping track of and directing what is being done. Large organizations find it necessary to systematize their business if they expect to survive. The temptation to over-simplify operations in some lines of business may lead to serious consequences.

Take, for example, a certain small business that has gradually grown larger, but where the old order has never changed. Most

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of the instructions inside the organization are still given verbally. Meetings are held and problems are discussed, but no record is ever kept of it. Long distance calls are made, but not recorded. Then, a week or so later someone will ask, "When did I call John? I wonder if I told him about . . . ?"

Expenditures are made for equipment which will reduce costs, or help production; then, through some change of supervision, it is found that the equipment is unnecessary. Long range planning is out of the question; minds are made up and plans are set in motion with all haste. Sometimes they work out satisfactorily, but often certain plans must be abandoned or materially changed.

It sounds like a poorly operated, mismanaged business. Perhaps it is. Perhaps you will say, it couldn't happen here. But after all, it may pay to give the matter serious thought, so that an adequate system of procedure (minus excessive red tape) will keep pace with business growth.—B. A.

Keep Some of Your Women Finishers

★ Women have a definite place in a finishing department. Their natural tendency toward neatness and cleanliness fits them for jobs requiring patience and agility at the same time. I have seen women sanders turn out fine quality work with an ease that was surprising. In several furniture factories I have seen women spraying clear lacquer sealer as a first coater; and in the shading department I have noticed that women sprayers took their shading job seriously and their work had just the right touch.

With the return of many men to their old jobs as sanders and sprayers, there will be a tendency to retire some of the finishing department girls and women. It is my suggestion that some of these skilled women be given an oppor-

tunity to fit into other positions, if possible.

If they have the aptitude, you will probably discover some fine clerical talent that can be trained to handle piece work, cost records, order chasing, or to serve as assistants to foremen. It is well known that there are several very capable women top executives in the furniture field. Given the opportunity, women will help sustain furniture beauty and style, and prove worthy of your judgment.—NORMAN ABRAMOVICE.

Confidence—a Formula for Better Workmen

★ In every finishing department, as time moves on, certain men become recognized for their dependability and high quality workmanship. These men should be given special consideration and encouragement to set an example for others doing the same type of work. They should be encouraged to show the less experienced workers how to do their work in an efficient manner—all of this training, of course, under the watchful eye of the finishing foreman.

By demonstrating to employees that you are willing to allow the outstanding members to assist in shouldering certain production responsibilities, you are building a foundation of mutual respect for your organization. You are taking a forward step in securing more friendly labor relations. Your men are human, and when they see that outstanding workmanship is noticed and rewarded they will do their utmost to show that your confidence in them has not been wasted. Confidence is a great thing. Thrown around haphazardly it loses its value. Restricted or completely denied, the lack of it creates disloyalty and breeds hatred. Given out judiciously, it brings rich rewards. Business expansion calls for judicious confidence.—*N. Obram.*

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Experienced finish department foreman in mid-western wood furniture factory making high quality product. Submit information on experience and previous employers. Address IF-284, care Industrial Finishing.

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By well established manufacturer of lacquer and synthetic coatings. Experienced man with following preferred for industrial trade in Connecticut. Drawing against commission. All replies held in strict confidence. Give full particulars. Address IF-301, care Industrial Finishing.

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Technical man experienced in transparentizing paper. Ability to work with research chemist and design or assist in the design of equipment for transparentizing papers. Experience more important than age. Give complete information in first letter, including salary requirement. All answers held confidential. Address IF-253, care Industrial Finishing.

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Experienced formulators for both lacquers and synthetic enamels. Excellent opportunity. Detroit area. State training, personal qualifications and starting salary. Address IF-297, care Industrial Finishing.

PAINT ENGINEER.

Wanted—by National Food Organization, Chemical Engineer thoroughly familiar with paint properties to do analysis and prescribing of method of application and kind of paint to be used in a wide variation of severe paint conditions. Should have chemical engineering background or equivalent, also 4 to 5 years of actual experience in paint testing and formulation of industrial finishes. Excellent opportunity for individual possessing above qualifications. Submit full details of background, education and experience in first letter. All replies in confidence. Address IF-298, care Industrial Finishing.

ADMINISTRATIVE CHEMIST WANTED.

Exceptional Opportunity for experienced formulator of Industrial lacquers and synthetics for wood, metal and plastics. Position requires man capable of originating and directing research and development work. Expanding laboratory facilities insure exceptional future to man having proper requirements in an established and aggressive organization featuring quality products. Good starting salary. Inquiries received in strict confidence by mail or in person. When writing give full particulars as to past experience. THE CLINTON CO., 1210 Elston Ave., Chicago 22, Ill.

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To represent well-established modern equipped Industrial Finishing Manufacturer in Chicago Area, for Southern or Southwest territories, agent or broker with good contacts in volume varnish or lacquer accounts. Good products, competitively priced. Liberal financial agreement. Address IF-300, care Industrial Finishing.

SALESMAN WANTED.

Men covering Indiana, Ohio, Michigan, Illinois, Wisconsin & Kentucky wanted to handle a line of lacquer thinners. Men calling on Industrial Finishing trade can make a profitable side-line in addition to their regular line. C. W. FISHER PRODUCTS, Inc., 2010 E. Willard, Muncie, Indiana.

INDUSTRIAL SALESMAN WANTED.

Midwest paint manufacturer desires an experienced Industrial salesman for Pittsburgh area. Territory partly established. Salary, expenses and bonus arrangement. Address IF-296, care Industrial Finishing.

INDUSTRIAL SALESMAN

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Industrial coatings field service man—Eastern Seaboard and Chicago areas. Experience in application techniques of spraying, dipping, flocote, etc. General knowledge of paint and lacquer chemistry and formulations. Sales attitude and personality important. Salary and incentive bonus. Address IF-287, care Industrial Finishing.

LACQUER SALESMEN WANTED

Manufacturer of quality line of lacquers requires experienced salesmen who must be capable of volume business. Good salary and expenses plus bonus. Write detailed facts regarding background and experience. Address P. O. BOX 805, Hoboken, N. J.